BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, OCTOBER 27th, 1934

BAD SURGICAL RISKS*

BY

G. GORDON-TAYLOR, O.B.E., M.A., M.S., B.Sc., F.R.C.S.

SURGEON TO THE MIDDLESEX HOSPITAL, ETC.

Apart from the technical competence of the operator, the organization of his theatre, and the environment in which he works, there are many factors which combine to determine the success or failure of a surgical operation, and which contribute towards promoting a glorious result or compassing a fatal ending. The title of the subject for this discussion might appear literally to indicate surgical undertakings which, by reason of their magnitude, by reason of the condition of the patient, or possibly because of both these causes co-operating, seem fraught with grave but justifiable hazard; or the reader perusing the wording of this theme might contemplate a morning spent on listening to a veritable catalogue of perils to which patients have been quite unwarrantably exposed by operators, whose conduct is tacitly implied to have been reprehensible in this respect. The parlance of insurance has, however, invested the term "bad surgical risk" with a rather different connotation: it is the operated, and not the operation, that is envisaged, and the *bad surgical risk* has been defined by Basil Rooke[1] as "*a type of patient whose prospect of recovery from active surgical treatment of his condition falls much below the average.*"

It is not, therefore, intended to discuss in these columns surgical enterprises formidable in magnitude and no less forbidding in their prospective mortality, such as the total extirpation of the thoracic oesophagus for cancer and its reconstitution by some form of oesophagoplasty, a surgical triumph gained in this country only by Grey Turner[2] of Newcastle in that *annus mirabilis* of oesophageal surgery, 1933, and more recently abroad by Gobrandt of Berlin.[3] We are not to consider the ablation of large hepatic tumours, whether these be primary hepatic adenomata or the direct extension of a colonic cancer. Interpelvi-abdominal amputations[4 5] claim no attention in this discussion, although they are still associated with an operative anxiety sufficient to designate their performance as a risky procedure. Dramatic and heroic extractions of emboli from the pulmonary artery, although bad surgical risks in the literal sense, are to make no claim on our notice, nor are the marvellous encroachments of war surgeons into operative fields hitherto unexplored, than which there has been no greater hazard and no more glorious attainment than Pierre Duval's extraction of a bullet from the intrapericardiac portion of the inferior vena cava.[6] In this discussion it is *upon the patient himself rather than upon the operation* that attention is to be focused.

Various causal agencies are operative in determining a patient a "bad surgical risk": (*a*) aetiological factors—for example, race, sex, heredity, age, etc.; (*b*) bodily conformation—fat, colour of hair, etc.; (*c*) previous habits and mode of life; (*d*) antecedent or intercurrent disease, and the state of the cardiovascular, respiratory, urinary, and nervous system; (*e*) the psychology, etc., of the patient; (*f*) the pathological condition for which surgery is contemplated, the severity of that condition, and the existence of secondary phenomena affecting the sufferer prejudicially; and (*g*) the type of operation proposed.

This discussion would assuredly be judged incomplete, and would fail in its object, if one were content with delineating and portraying these "bad surgical risks," and did not adumbrate the therapeutic measures whereby these patients might be made safe, or safer, for surgery.

General Aetiological Factors

Race.—It would be difficult to controvert the accepted view that members of the Jewish faith are notoriously "bad surgical risks"; and in the case of operation the simplest measures are to be preferred: safety must be put before thoroughness and the highest efficiency. It is easier for "a camel to go through the eye of a needle" than for a Jew to recover from an abdomino-perineal excision of the rectum; a perineal ablation must suffice. Moreover, although a Jew may recover from a gastrectomy for ulcer, it is rare for recovery to take place when the pathological condition demanding an extensive removal of the stomach is a malignant growth. I have, nevertheless, a Jewish patient alive five years after a gastro-colic resection for a carcinoma involving the stomach and the whole of the right side of the colon; this is, however, a very exceptional case, which goes to "prove the rule." The Welsh and Irish† have also been impugned as relatively bad risks. The Chinese stand operation well; but my experience of war surgery among those who came "from India's coral strand" convinced me that they were extremely "bad risks."

Mr. Green-Armytage[7] kindly informs me that the operative risk in natives is related in no small degree to such considerations as blood count, calcium index, blood pressure, which are all lower than those of the "Westerner"; their diet, whether they be meat-eaters or vegetarians, is always defective in vitamin A, with the result that their resistance to infection is below normal, and a merely moderate degree of infection of thorax or abdomen proves fatal. Considerations of diet may also be responsible for the frequency of post-operative ileus after abdominal operations, and for the alarming acetonuria which may supervene after surgery. On the other hand, the increasing desire of the native to get out of bed at the earliest moment after operation, and the good

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

† A lengthy experience of surgery behind the 16th South Irish Division during the war does not confirm but rather refutes this opinion.

musculature of the abdomen, make post-operative thrombosis rare.

Sex.—It is well known that certain operations, such as the extirpation of the rectum by the combined method, are better borne by women than by men, but on the other hand I am confident that gastrectomy is an operation far more frequently followed by anaemia in females than in men,[8] and therefore to be performed in the former sex more reluctantly. Operations are badly borne during menstruation, pregnancy, and parturition. The sinister effect of the menstrual period upon a radical breast operation is perhaps not sufficiently well known; such an undertaking at that epoch may well prove calamitous.

Heredity.—A long-lived ancestry is a precious possession and an asset of no mean worth, if surgery be contemplated. There are at present no means of altering for the better the proclivity of this or that race to react badly to surgery; we cannot in the twinkling of an eye transform ancestral inheritance or racial characteristics, any more than can "the leopard change his spots or the Ethiopian his skin."

Age.—It is obvious that surgery must be safest during those years when the individual is in his prime, and that operations performed at the extremes of life must carry with them a greater risk than those carried out during the intermediate decades. Nevertheless, it is a remarkable fact that surgery undertaken in the first three months of infant life by skilled and experienced operators is extremely well borne.

Mr. Tyrrell-Gray,[9] whose considered opinion, based on a vast experience of children's surgery, is an authoritative one, has courteously informed me of the

> "absolute safety of Rammstedt's operation for pyloric stenosis; the absolute safety of herniotomy, even double herniotomy, in these early months, if this operation has to be done on account of large size, obstruction, or strangulation, or because it cannot be controlled by any form of truss; likewise the safety of hare-lip operations (although he himself prefers waiting)."

The great anxieties naturally associated with emergency operations during the first few days of life are concerned not so much with the paucity of the hours of separate extrauterine existence as with the actual pathological condition demanding surgery. Fortunately, congenital intestinal atresia is rare, as is also congenital volvulus but all cases, except the simplest malformation of the hindgut, are extremely "bad surgical risks." Nevertheless, Mr. Gabriel has successfully closed a colostomy performed for some congenital hindgut malformation as an emergency operation in the first few days of life.[10] Apart from gangrenous changes demanding resection of bowel, the prognosis in intussusception is excellent, despite the fact that 50 per cent. of the cases occur between the fifth and ninth months of infant life. Early diagnosis, prompt surgery, and the method of anaesthesia have all conduced to the attainment of this low mortality. Gas and oxygen would appear to be the anaesthetic of choice in these cases, but in my own hands spinal anaesthesia has given me a mortality of only 2 per cent., my one fatal case being one demanding an excision for gangrene of the bowel. The occasional publication in medical journals of successful cases of intestinal resection for gangrenous intussusception in early infancy bespeaks the fatality of the procedure: the continuity of the bowel must be re-established at all costs; a time-saving but chicken-hearted enterostomy after resection is always fatal in these cases.

The aged are naturally "bad risks" in cases of injury, and where any operation of severity is contemplated. The adage that "a man is as old as his arteries" must be constantly kept in mind if any complicated surgical incursion is under consideration. In the very old, local anaesthesia is probably the method of choice, and with its aid I have successfully performed a colostomy for a woman of 98 years with a cancerous rectum, who survived a year; and, in the case of a male nonagenarian, I anastomosed the ileum to the pelvic portion of the rectum for a large obstructing carcinoma of the sigmoid: the patient survived two years, and died of uraemia. It is only fair, however, to record that the oldest patient successfully operated on had general anaesthesia administered; she was a woman of 107 years with a strangulated femoral hernia, and was alive a year after without sign of recurrence. I have, under light general and local anaesthesia, *resected* a carcinoma of the transverse colon in a gentleman of 85, who is alive six years after.

Bodily Conformity

Those whose stature and form are abnormal are "abnormal surgical risks." The microscopical woman of a few stones in weight may finally disappoint the operator just as easily as the giant or the Hercules.

Fat is well known as a surgical handicap, and where there is no necessity for special haste time may be well spent in reducing weight and improving the musculature of the heart and body under the guidance of a skilled physician and the co-operation of a biochemist. Apart from the mechanical difficulties of operation in the obese, the depth of the wound, the friability of the tissues, the less secure ligature of vessels by reason of greasy gloves, the obscuration of the serous coat of the large intestine by enormous appendices epiploicae and the fatty tissue on the bowel, it must be remembered that there is probably the same amount of fat round the heart and in the heart itself; it is this type of person who perhaps appears more prone to thrombosis and embolism, and who certainly resists infection less well than his neighbour of more spare frame. Any operation for a ventral hernia in a fat woman, where much of the contents of the abdomen have been long outside the coelom and are now replaced, is almost always disastrous.

The general condition of tissues is also important. Prolonged confinement to bed tends to produce deterioration of the tissues of the body, a poor cardiac musculature, and a general inability to respond to any severe surgical procedure. On the other hand, confinement to bed for a few days before operation may be a most salutary preliminary measure: this simple measure may make an easy operation of one which promised to be difficult, and less pain is experienced by the patient than if he had had his abdomen opened "the morning after the night before." The auburn-haired, especially children, are liable to occasion anxiety during and after operation, and their scars have a tendency to become keloid in character: a keloid condition resulting from a circumcision is a terrible sequel to the commonest operation in the world.

Habits

It is obvious that those addicted to excess in the matter of alcohol, tobacco, drugs, etc., must be "worse surgical risks" than their fellow creatures. The liability of the alcoholic to develop delirium tremens after operation or injury is well known: the mortality of any post-operative chest complication is far higher, but if he is already the possessor of a cirrhotic liver, the chances of his recovery from any really severe operation are remote.

Antecedent or Intercurrent Disease

This must obviously prejudice the patient's chances of a successful operation, and this is the more true of cases in which disease is latent and unexpected, and when some urgent operation is required. How often has *pulmonary*

tuberculosis flared up—perhaps disastrously—in a patient making a good recovery from a perforated gastric ulcer. Where the thoracic condition is known beforehand, the use of an appropriate anaesthetic may minimize the risk.

Cardiovascular disease and degeneration must obviously load the balance against the patient: arteriosclerosis and calcification of vessels will obviously be a matter of greater moment in some varieties of operation than in others. When vascular disease is combined with fat in a Jewish patient with a growth in the colon, the surgeon will be prudent who avails himself of the Paul-Mikulicz type of exsection. The co-operation of a good physician—not necessarily a cardiologist—is of great help in the pre-operative treatment of those with a heart and a blood pressure deviating from normality, who are awaiting a severe operation. Sometimes, in spite of cardiovascular degeneration, " bad surgical risks " will recover from very severe surgery, and I have saved a hind-quarter amputation in a man of 63 with marked calcification of all his arteries, demonstrable in radiograms. Again, four years ago I extirpated a cancerous rectum for a patient of 75 years with auricular fibrillation who still survives. Vascular disease carries other risks more remotely connected with the operation, such as cerebral haemorrhage, cerebral thromboses, intraocular haemorrhage, etc., but usually those with a high blood pressure are found to stand operation extremely well. A low blood pressure is a more serious handicap for severe surgery than is hypertension.

The development of post-operative thrombosis and embolism is one of the tragedies of surgery. George Bankoff,[11] employing a thyroxine test, was able to group patients into two classes: (*a*) thyroxine-sensitive, and (*b*) thyroxine-resistant ; he further found that it is only in the thyroxine-resistant cases that thrombosis occurs. He claims that the complication can be prevented by three hypodermic injections of atropine 1/100 grain and ephetonine 1/4 grain ; these are commenced on the first day after operation, and repeated on the third and fifth days.

The odds must be desperately against survival from any but the simplest operation in those with *Addison's disease** ; my only case of appendectomy in such a case died. I have had no personal experience of eucortone in this rare disease, and in an emergency there is little time for premedication.

In *diabetes* the risks and dangers of surgery are now negligible since insulin and glucose therapy have been employed pre-operatively. The cause of death in fatal cases is senility, not the glycaemic condition. The only anxiety is post-operative vomiting, especially if the patient is unable to take glucose. *Renal disease* obviously constitutes an added risk: renal breakdown will be referred to when genito-urinary operations are under consideration.

Antecedent infections constitute an added risk in surgical procedure. Those who have suffered from *erysipelas* in the past may develop it again during the aftermath of an operation, and those who have *had tetanus* in connexion with a wound years before may have a recrudescence of the infection if the part be re-operated on ; the fresh outburst may indeed prove fatal. I have known an alarming recrudescence of a *pyogenic infection* in the case of a man with a diaphragmatic hernia resulting from an old abdomino-thoracic gunshot wound: the hernia was operated upon by the transthoracic route ten years after his original wound. In these matters the bacteriologist may afford most valuable aid. Those who have recently suffered from some *systemic infection*, such as pneumonia, influenza, etc., are bad risks. Where opportunity arises, operation should be deferred as long as possible. The performance of herniotomy soon after a bad cold or an attack of influenza has been followed on more than one occasion by thrombosis and by recurrent embolism, and it is my practice to defer these operations until the summer, especially in the case of those who are approaching, or who have reached, middle age. The *syphilitic* who has been well treated for his disease usually bears operation well, but the onset of a gastric crisis or some other type of crisis may occasion some anxiety during convalescence. The presence of a syphilitic history will modify the type of operation envisaged. The onset of general paralysis may be precipitated by an accident in those who have had syphilis.

Second operations, following hard on the heels of the primary surgical attack, are apt to be followed by thrombosis of lung or limb ; but in these cases the operation is almost always of an urgent character, and the surgeon cannot choose his own time.

* Carl Greene, Walters, etc.,[12] report a successful orchidectomy for tuberculosis in a patient with Addison's disease.

Psychological Factors

Any surgeon of experience will have convinced himself that "the psychological undesirables," considered from an operative viewpoint, constitute as numerous and motley a collection as the Gilbertian list in *The Mikado*. That surgeon will be wise who refrains from any operation of convenience upon those who require much persuasion or over-persuasion: he should beware of the apprehensive patient ; and he will also regard with anxiety the man with huge piles of books on the tables at each side of his bed ; the man with the rapid pulse and the stack of French novels around him ; and likewise the individual who is reading his paper upside-down!

An eventful recovery, or worse, may be confidently predicted for those who change their religion the night before an operation, and for the politician or potentate who keeps the theatre waiting while the final lines of his autobiography are completed. These types may well be regarded as " bad risks " before operation, but the appearance of these eccentricities or unusual whims in a patient after surgery are signposts of ominous portent. Unfortunately, this attitude of mental unrest often develops only after an operation, and the operator may be taken unawares. It is commonplace experience that clergymen, doctors, nurses, actors, and those of an artistic temperament are "poor surgical risks": and garrulous loquacity, pre-operative or post-operative, whether it be an individual trait or a transient phenomenon, is a danger signal that should *not* pass unnoticed: it so often heralds surgical disaster.

Pathological Conditions Demanding Surgery

There are certain anatomical regions of the body which appear to tolerate surgical incursion and attack far better than others ; in this respect the gynaecological surgeon is at a great advantage: the invulnerability of the pelvis is a surgical adage. No matter what the pathological condition present, no matter how derelict the patient, a good result may be almost confidently predicted. *The pelvis is indeed the surgeon's fairyland*: there are few or *no* " bad surgical risks " in this area of the body.

Surgery of Thyrotoxicosis

To my mind the greatest advance in surgery during the last quarter of a century has been the extraordinary increase in the safety of operations for this condition. Whereas operations for this type of case were at one time fraught with grave anxiety and associated with a heavy mortality, save in the hands of a few with great experience and special knowledge of the disease, it has now become one of the safest of the operations of surgery.

Pre-operative medication with iodine, and the repeated investigation of the basal metabolic rate during the pre-operative period of rest in bed, has made these cases *almost safe* for surgery. The surgeon has become almost a mere carpenter in the hands of the physician and biochemist, who indicate the exact time for surgery with an accuracy akin to that of the astronomer. The work of our Courtauld Institute of Biochemistry at the Middlesex Hospital has enabled us to reduce the mortality of the operations for toxic goitre to an almost infinitesimal figure: the larger number of cases have been operated upon by my colleague and assistant surgeon R. Vaughan Hudson, but the results of all the cases operated upon by all the surgeons in Middlesex Hospital yield a mortality rate of under 1 per cent. For my own part I prefer regional anaesthesia, but the combined results of eight surgeons, employing almost every variety of anaesthesia, would appear to discount the value of my personal predilection. Increased knowledge has given even those whose goitre operations are not yet to be numbered in thousands rules by which dangerous surgery may be avoided in this class of patient.

Operation is contraindicated and dangerous in the following circumstances: (*a*) If the patient has been dosed with iodine indiscriminately for months or years previous to seeing the surgeon with a view to operation, at which time the basal metabolic rate is above 40, and tachycardia is present, along with marked loss of weight. (*b*) If, when put on iodine by the surgeon preparatory to operation, the patient gets *clinically worse* and the basal metabolic rate rises. (*c*) If operation is delayed too long after iodine has been prescribed; the iodine loses its action, and the basal metabolic rate rises even on iodine. (*d*) In the presence of an "acute" infection, such as tonsillitis. (*e*) If the patient is maniacal or mental. (*f*) If the patient shows an idiosyncrasy to iodides, as is seen by coryza, nasal discharge, skin eruption, and bronchitis. These risks can be overcome by the following measures: (*a*) Only giving iodine immediately prior to operation. (*b*) Operating only if the response of the patient to iodine is favourable—that is, the basal metabolic rate falls to constant low level. (*c*) Not operating if iodine makes the patient worse: the iodine should be stopped for about two months and then restarted in an effort to obtain a favourable response: *this invariably happens.* (*d*) Operation should not be delayed too long after iodine has been started—that is, more than twenty-eight days. In spite of current belief, the following are not contraindications: (*a*) heart failure, congestive or anginal; (*b*) auricular fibrillation or flutter; (*c*) hypertension; (*d*) extreme youth or old age.

Surgery of the Tongue and Mouth

Increased knowledge and experience of radium therapy has given us an alternative method of treatment for those who are, on general grounds, or because of the extent of the growth, considered "bad surgical risks." Whatever views may be held as to the best form of treatment for cases of cancer of the anterior half of the tongue, which are "good surgical risks"—and each such case must be considered strictly from every point of view—there can be no doubt that the final results of radium therapy are at least as good as, and probably much better than, those of surgical extirpation, where the growth involves the posterior portion: and the mortality of the procedure is but a fraction of that involved in the more drastic measure.

"Block-dissections" of the neck for the extirpation of the cervical glands are usually well borne even by the aged, but in the case of bad risks, and for recurrence, the various methods of radiation therapy are available.

Surgery of Peptic Ulcer

Ill-advised, ill-timed, or inappropriate surgery may convert into a "bad risk" one which seemed to promise well. There is no single form of operative procedure universally applicable to every case of peptic ulcer. Apart from those general considerations, outlined in the introductory paragraphs, which combine to constitute a patient a "good" or "bad" risk, there is perhaps no factor which so cogently determines in which class the sufferer shall find himself during and after a gastric operation as the judgement of the surgeon under whose care he is placed. By surgical judgement, or the lack of it, the patient's cause may be won or lost.

The immediate result of surgical incursion will be undoubtedly influenced by the particular technique employed: it is manifest that for the patient who is admittedly a bad risk the most simple, the most gentle, the most *rapid* procedure is the *method of election.* The position of the ulcer, its size and fixity, any suspicious characters suggestive of malignancy, the results of fractional gastric analysis, are all points worthy of careful consideration in the "good risk" candidate for a gastric operation; or in one whose previously poor and debilitated condition has been improved by preliminary treatment to approximate normality. Although these data, amassed and collected by radiological and biochemical methods, will assuredly influence and determine the type of operation in the "good risk" patient, in the "poor surgical risk" they must not be unduly stressed: a gastro-jejunostomy, or even a jejunostomy, performed under a local anaesthetic may be the wisest procedure, and at worst the patient's condition may be improved and ameliorated, so that more drastic surgery may be considered later, if by any chance symptoms should reappear, or should that full measure of health which surgery can confer not have been attained by the minor procedure.

The dangers of post-operative complications in "the bad surgical risk," as indeed in all those who undergo upper abdominal surgery, may be greatly reduced by the employment of regional and splanchnic anaesthesia: this may be combined with very light general anaesthesia. Light ether, or even ether and chloroform anaesthesia in combination with the methods of infiltration, has, in the last dozen years, practically abolished thoracic complications in my upper abdominal operations. With such a technique the mortality of gastrectomy for ulcer is under 4 per cent.

High spinal anaesthesia, with the great fall of blood pressure induced, has not in my hands been found to help the "bad surgical risk"; but the surgeon will, of course, utilize that technique with which he has made himself familiar, and which has always given him the best results.

Gastric and Duodenal Haemorrhage from Ulcer[13]

A patient with a chronic peptic ulcer may be made a "bad surgical risk" by ill-judged and indiscriminate surgery, but he is already and at once a "bad risk" when he has bled from that chronic ulcer. Furthermore, if such a patient is a "bad surgical risk," he is no less a "bad medical risk," although the truth of this latter statement may not have always been appreciated. The mortality from bleeding among cases of chronic ulcer of the stomach and duodenum treated by non-operative measures at Middlesex Hospital from 1924 to 1933 amounted to 24 per cent.—a percentage mortality almost identical with that obtained by A. M. Cooke from the St. Thomas's figures; in the Middlesex Hospital cases a second large haemorrhage produced a mortality rate of 78 per cent., and with each succeeding haemorrhage the risk became greater and

greater. It would therefore appear that in these cases operation is required before a second haemorrhage takes place, and that for such patients, and at the particular stage in the course of their illness, surgery is the only logical measure of safety. The surgical risk would appear to be least bad, and the moment for intervention most opportune, not longer than forty-eight hours after the bleeding has ceased.

Finsterer of Vienna,[14] however, regards bleeding from a chronic ulcer as an imperative indication to operate at once. Early operation in his hands is associated with an extraordinarily low mortality. After twenty-four to thirty-six hours they become bad surgical risks, and the mortality rapidly rises. My own figures for operations performed for acute haematemeses from 1919 to 1926 show a mortality of 19 per cent., so that the risk is not inconsiderable. Closer co-operation between physician and surgeon will show us which are the cases that should be attacked by surgical intervention ; but if surgery be required operation should be performed early under local anaesthesia, and in certain cases a caecostomy may be advantageous.

The possessor of an anastomotic ulcer is a "bad risk," and to quote the words of Garnett Wright,[15] "The Angel of Death is hovering near, and the fluttering of his wings can be almost heard." The patient, worn out with pain, is in many cases little able to stand the prolonged and complicated surgical operation which is required to relieve his symptoms and to prevent a recurrence of his malady. Increasing experience of the operative surgery of this condition, which is in itself becoming more frequently encountered, will doubtless lower its mortality in the hands of those who most frequently have to treat these cases. A gastro-jejunal or a jejunal ulcer may be a severe burden to bear, but an added communication with the colon increases the duration of the operation to cure it, and a complicating haemorrhage makes the risk more desperate than ever.*

Gastric Cancer

All gastric cancers are "bad surgical risks," and I am in the habit of teaching that, whereas a gastrectomy for ulcer will always try to live, a gastrectomy for cancer will always die if he can. Nor am I alone in regarding the condition and its operative surgery as a "bad risk," for Bastianelli,[16] whose enterprise and whose sympathy enable him to resect no less than 44 per cent. of his cases, admits a mortality of 28 per cent. Even excluding three cases of total gastrectomy and twelve stomach-colon resections —which, of course, tended to increase the death rate—his mortality rate from operation was 25.4 per cent.

Finsterer,[17] however, employing local anaesthesia, had only twelve deaths in 202 operations—6 per cent. In the advanced cases where pancreas, colon, or liver are involved, resection carries, of course, a much heavier mortality. In those cases of cancer of the stomach associated with stenosis at the pyloric extremity, protracted vomiting, dehydration, toxaemia, etc., may make a single-stage operation a tax on the patient's resisting and recuperative powers that he is incapable of bearing. In these cases, therefore, a preliminary drainage operation and a subsequent resection may turn the "bad risk" into a "good" one.

According to the condition of the patient, the procedure may take the form of an ordinary anterior or posterior gastro-jejunostomy and a later resection ; or the stomach may be cut across above the growth and an anastomosis performed between the proximal end and the small intestine. The upper end of the distal segment is sutured over, and the suture line reinforced by omentum. The operative technique of the operation is improved and facilitated by a clamp of the von Petz type. It is almost imperative in every case of gastrectomy for cancer to make use of the transfusion of blood.

Surgery of the Spleen

There are certain forms of splenic pathology where operation is associated with severe risk. The danger of post-operative thrombosis in cases of splenic anaemia with a high initial blood platelet count is perhaps not always sufficiently appreciated: R. E. Kelly[18] of Liverpool has, amongst others, drawn attention to it. The services of a competent haematologist are of the greatest importance when splenectomy is contemplated for this disease. Splenectomy for thrombocytopenia has, in my experience, been a most dramatic and a safe operation, but the mortality has been affirmed to be 80 per cent. when the operation is done in an acute phase. The risk of transfusion in cases of acholuric jaundice is not inconsiderable.

Cancer of the Colon and Rectum

It will naturally depend upon that percentage-mortality which is regarded as fair and justifiable for an operation, to designate the surgical adventure as a "good" or "bad risk." By reason of the operative mortality of colectomy for cancer of the colon, it would seem that most of these cases are to be regarded as "unfavourable risks." Sistrunk,[19] in 1928, while affirming that surgery offers the only cure for malignant disease of the colon, deplored the high mortality of colectomy. "Except for operation in certain serious emergency cases," he wrote, "the mortality following operation for cancer of the colon is perhaps higher than in any other type of intra-abdominal operation."

Grey Turner in 1929[20] admitted an operative mortality of 12.28 per cent., but many of his cases were most complicated resections. He appears to think that a mortality of 5 per cent. would represent the acme of surgical judgement and the perfection of operative technique. The mortality of the procedure may be reduced, and the risk improved, by drainage of the bowel, preliminary or simultaneous, the employment of exteriorization methods of the Paul-Mikulicz type, lateral incisions over the growth where possible, the provision for drainage of the abdomen at the site of anastomosis, the employment of blood transfusion, and possibly preliminary immunization. The mortality of operations of the Paul-Mikulicz type in my hands is in the neighbourhood of 1 or 2 per cent., and these should be used more frequently.

In the case of cancer of the rectum there are many types of operation, but the most important factor in the management of the case is the judgement of the surgeon. In forming a judicious estimate of his patient he will take into consideration the age, the sex, and the cardiovascular system ; the urinary tract and the bodily configuration of the invalid will also demand attention. A preliminary microscopical section of the tumour may be possible, and may help in forming an opinion as to the malignancy of the particular cancer. The surgeon may utilize the Moots-McKesson test of operability by employing what is termed the "pressure-ratio percentage" ; the pulse pressure over the diastolic pressure is calculated in percentages, the normal being about 50 per cent. If the pressure-ratio is high or low there is reason to apprehend danger. If below 25 per cent. or above 75 per cent. the case is inoperable. Close attention to these points and a wise and judicious decision will make a "risk" a good or fair one.

* Mr. A. J. Walton has operated on seventy-nine of these cases, and out of his last twenty cases has had the amazingly low mortality of only one death (*Lancet*, April 28th, 1934). My own results (G. G.-T.) are: fifty-four anastomotic ulcers treated by resection, with ten deaths. Excluding ten cases in which there was a communication with the colon, and of which four died, there were six deaths in the remaining forty-four cases—that is, 13.6 per cent. mortality.

The Surgery of the Biliary Tract

In contrast to the extraordinary safety of operations on the gall-bladder the surgery of the common bile duct is associated with a much heavier risk to life. To make these cases of jaundice safer for surgery operation should be deferred until the jaundice begins to subside. Blood transfusion is better than intravenous calcium chloride as a means of diminishing or preventing the tendency to haemorrhage, and is especially valuable where the bilirubin curve tends to rise. It is also important to administer large quantities of water and of glucose before and after operation—by the rectum or by intravenous infusion. In the worst cases of jaundice nothing more than drainage should at first be essayed.

Genito-Urinary Surgery

A candidate for the operation of prostatectomy is a "bad surgical risk" if the operation is performed when the blood urea is over 60 mg. per 100 c.cm. ; and if there is evidence of moderate renal impairment, even in spite of a normal blood urea estimation. Eric Riches and Douglas Robertson[21] regard it as dangerous to operate radically if the urea-clearance test of van Slyke for estimation of renal function is below 60 per cent. of normal, no matter how normal may be the blood-urea estimation.

Secondary nephrectomy for any condition is always an anxious operation, and two or three transfusions and infusions may be required to carry the patient through his convalescence from what may be a carnivorous type of surgery.

Conclusion

It requires no superlative enthusiasm of mine, no unwarranted optimism, to foresee and foretell that, as the "bad surgical risk" of a decade or two ago is now a "normal or good risk," so will the "despairs" of to-day be the "certainties" of the morrow. The craftsmanship of surgery is not yet finished and perfected as an art—fresh techniques will be evolved, fresh avenues of approach will be explored, fresh territories will assuredly be conquered. More accurate and certain knowledge of the causation and cure of disease, and methods and forms of therapy still undreamt of, will in future days cheat and rob Death of those victims that, in this twilight of our surgical wisdom, appear to us now beyond all mortal aid.

References

[1] Rooke, Basil: *Practitioner*, April, 1933, p. 564.
[2] Turner, G. Grey: *Lancet*, December 9th, 1933, p. 315.
[3] Idem: *Proc. Roy. Soc. Med.* (Sect. Surg.), June, 1923, xvi, 8, p. 43.
[4] Pringle, J. Hogarth: *Brit. Journ. Surg.*, 1916, p. 283.
[5] Gordon-Taylor, G., and Wiles, Philip: In the press.
[6] Duval, Pierre: *Soc. de Chir. de Paris*, June, 1928.
[7] Green-Armytage, V. B.: Personal communication.
[8] Gordon-Taylor, Hudson, Whitby, Dodds, and Warner: *Brit. Journ. Surg.*, 1929.
[9] Tyrrell-Gray, H.: Personal communication.
[10] Gabriel, W. B.: *Proc. Roy. Soc. Med.*, May, 1931, xxiv, 5, p. 102.
[11] Bankoff, George: *British Medical Journal*, 1934, i, 189.
[12] Greene, C. Walters, *et al.*: *Ann. of Surg.*, December, 1933.
[13] Gordon-Taylor, G., Abrahams, A., Bennett, T. Izod, Morley, J., *et al.*: *Lancet*, 1934, i, 572.
[14] Finsterer, Hans: *British Medical Journal*, 1932, ii, 399.
[15] Wright, Garnett: Association of Surgeons meeting, Birmingham, May, 1934.
[16] Bastianelli, Raffaele: *Rep. Internat. Confer. Cancer*, 1928, p. 352.
[17] Finsterer, Hans: Ibid., p. 344.
[18] Kelly, R. E.: *Proc. Roy. Soc. Med.*, September, 1929, xxii, 1, 1514.
[19] Sistrunk, W. E.: *Collected Papers of the Mayo Clinic*, 1928.
[20] Turner, G. Grey: Annual Oration, Medical Society of London. *Trans. Med. Soc. Lond.*, 1928-9, lii, 301.
[21] Riches, Eric, and Robertson, Douglas: Personal communication.

RETROVERSION OF THE UTERUS*

BY

S. GORDON LUKER, M.D.Camb., F.C.O.G.

BOURNEMOUTH

The usual position of the uterus is one of anteflexion and anteversion in the middle of the pelvis, the axis of the uterus being very nearly horizontal. When the exact opposite of this occurs the uterus is retroverted and retroflexed. In between these two extremes any position of the uterus may be found. It is usual to describe a uterus as retroverted when the cervix is pointing downwards or forwards and the axis of the body of the uterus is directed backwards. The retroverted uterus is often retroflexed as well.

The normal position of the uterus is maintained by the structures which are attached round the supravaginal portion of the cervix. These are the pelvic fascia, the bases of the broad ligaments, and the utero-sacral ligaments.

There is a wide divergence of opinion as to the symptoms which result from retroversion of the uterus and the treatment required. Some confusion has arisen from grouping all cases together and not separating those of congenital origin from those acquired after pregnancy and labour. It is my intention, therefore, to make as clear as possible the different groups of cases.

Classification

1. The group of those women who are single and have congenital retroversion. It is a fact that many of them are unconscious of the condition and have no symptoms ; these, of course, require no treatment. There are others, however, in whom symptoms begin to appear as they get older. This may be due to increase in degree of the condition, with increasing retroflexion, giving rise to venous congestion and symptoms of backache, increasing dysmenorrhoea, pelvic discomfort, or pain for which no other cause can be found.

2. The group of married women who have a congenital retroversion which gives rise to symptoms, on or after marriage, of which the commonest is dyspareunia ; or they may seek advice for sterility ; or, if they become pregnant, miscarriage may result. These patients require investigation and treatment.

3. The group of those who are found to have retroversion acquired after miscarriage or labour. This is a large and important group, as is shown by the record of two hundred consecutive confinements. Post-natal examination one month after delivery showed that of the primiparae 13 per cent. had retroversion ; of the multiparae 3.5 per cent. had retroversion. These patients had received the advantage of skilled nursing and postural preventive treatment, so that the percentages are probably higher among the greater number of women attended in their own homes. These require treatment in order to prevent subinvolution after labour ; the position of the uterus must be corrected in order to prevent the development of symptoms of pelvic discomfort, backache, congestive dysmenorrhoea, leucorrhoea, and dyspareunia. Further, if a retroverted uterus is left uncorrected after labour it will be a factor leading to future prolapse.

The pelvic discomfort is generally of a dull aching nature, aggravated by activity and fatigue. It may have a bearing-down character or may give rise to a sensation of fullness or pressure on the rectum. The backache is generally dull and constant, increased by fatigue and relieved by rest. It is generally felt posteriorly over the sacrum, but may radiate towards the iliac fossae or the thighs.

* Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Treatment of Congenital Cases

In the case of single women many require no treatment and should be left alone. In young married women complaining of dyspareunia or sterility or miscarriage the condition may be treated by manipulation and a pessary, or by operation. It is advisable to give a good trial to medical treatment before resorting to a surgical operation. When treatment is indicated for the above symptoms it is often found that correction of the misplacement cannot be carried out as the manipulations cause pain, and it is difficult or impossible to correct the misplacement. In such cases it is advisable to carry out an examination under an anaesthetic.

The patient is anaesthetized, a thorough pelvic examination is made, and the body of the uterus is pushed forward either by the fingers alone or with the aid of a vulsellum forceps on the cervix. In difficult cases a uterine sound may be required to assist the reposition of the uterus. Having put the uterus into a satisfactory position, a Hodge pessary is inserted. This is left in for two or three months, and it is then removed and the position of the uterus after removal ascertained. If the uterus remains in good position after this treatment nothing further need be done. If, however, the uterus reverts to its old position after removal of the pessary, the question will arise whether to replace the pessary or to perform an operation. In order to arrive at a decision all the factors in the case must be carefully considered. If the position of the uterus cannot be corrected under an anaesthetic the indications for operative treatment appear greater, but generally speaking the indications for operation in single women do not often arise. In married women, on the other hand, symptoms are often sufficiently important to require treatment by pessary or operation.

Treatment of Acquired Retroversion

Seeing that retroversion is most often the result of pregnancy and labour, it is very important to adopt all precautionary measures which may prevent the occurrence of this displacement. The most important of these precautionary measures consist in promoting the free drainage and anteversion of the uterus during the puerperium. The puerperal woman should assume a prone position for at least two hours in the day. The bladder should be emptied at regular intervals, and the abdominal binder should not be sufficiently tight to press the fundus of the uterus back. Adequate rest in bed is essential, but it is difficult, for economic reasons, to arrange for hospital patients to stay in bed for more than twelve days. At the end of a month a post-natal examination should be made, and the position of the uterus determined. If the uterus is retroverted the position must be corrected by manipulation, and a Hodge pessary inserted for two months. At the same time the patient must be instructed to do all she can to promote involution of the uterus and pelvic floor by suitable exercises.

General lines of treatment fall under three headings: exercises, pessaries, and operation.

Exercises are most useful in helping to restore tone to the uterine supports after labour during the puerperium. They are helpful at a later date, but are of more value in restoring loss of tone than in repairing injury to the tissues. Further, their scope is limited, because it is difficult to give instruction in exercises designed to strengthen the levator ani muscle and the uterine supports, and it is even more difficult to get women to carry out these exercises except under expert instruction.

Treatment with Pessaries.—The vulcanite Hodge pessary is the instrument most suitable for temporary treatment of retroversion, and is far superior to the rubber ring for this purpose. Indications for its use are: (*a*) In mobile puerperal retroversion after correction of the position of the uterus. The pessary should be left in two months, during which time the pelvic floor and uterine supports regain their normal tone. On removing the pessary the uterus should remain in a position of anteversion. (*b*) In non-puerperal mobile retroversion—that is to say, when the retroversion is discovered at some interval after the last confinement. Here the pessary treatment is not likely to effect a permanent cure, but will relieve symptoms and arrest the progress of the displacement. When used in these circumstances the pessary will act as a valuable diagnostic agent, for if symptoms are cured by its introduction it shows that they were due to the backward displacement of the uterus. This will be of value in deciding whether operative treatment should be undertaken. (*c*) Pessaries are useful after correction of a backward displacement in early pregnancy; the instrument will prevent the recurrence of the retroversion. The main indications for pessary treatment are as a therapeutic test and as a temporary measure in puerperal retroversion. When, however, pessary treatment cannot effect a permanent cure, and relapse occurs after removal, the time has come to consider the advantages of operative treatment.

Operative Treatment of Retroversion

The indications for operative treatment for backward displacement of the uterus are in some cases quite clear when symptoms are severe or cause the patient considerable discomfort, or cannot be alleviated by pessaries or other means. This may occur when the uterus is fixed and the ovaries are prolapsed and tender; when the retroversion is associated with pelvic inflammation; when there is dyspareunia; when there is sterility; and when there is abortion. A decision, on the other hand, may be difficult when the symptoms are not severe, and when the retroversion is uncomplicated.

The question of operation is influenced by the age of the patient less than are many operations, for the reason that after operation pregnancy and labour may supervene without any risk of complication or recurrence. Before deciding to operate it is most important to take a very thorough history, make a very complete examination, and to have no doubt that the symptoms referred to are not caused by anything apart from the displacement.

In order to ascertain the opinion of others as to the indications for operative treatment in uncomplicated retroversion a form of inquiry was sent to the senior gynaecologists at the London teaching schools. The result of this inquiry shows that operative treatment is not common. When it is done the commonest indications are sterility and dyspareunia. The present position seems to be against operative treatment in uncomplicated cases. This attitude should, I think, be modified, since there are many patients who suffer severe symptoms from an uncomplicated retroversion who could be cured by operative treatment.

The indications for operation are, in my opinion, as follows:

(*a*) When the retroversion is fixed or is complicated by adhesions or by chronic pelvic inflammation.

(*b*) When the retroversion is giving rise to symptoms, which are increasing, of backache, pelvic pain, menorrhagia, dysmenorrhoea, or pain and difficulty with micturition or defaecation.

(*c*) When the retroversion, though mobile and simple, causes symptoms which disappear after correction of the displacement and insertion of a pessary—for example, dyspareunia.

(*d*) When retroversion is causing sterility.

(*e*) When retroversion is causing miscarriage.

In uncomplicated cases it is important to use a pessary as a therapeutic test before deciding in favour of operation; if the pessary relieves the symptoms, permanent cure by operation may be looked for with confidence.

Nature of the Operation

The operation of choice is that generally described as the modified Gilliam operation, after the name of the surgeon who first described this operation in the year 1900. The principal points in the operation are that a loop of the round ligament on each side is brought out under the peritoneum and attached to the anterior rectus sheath on each side. Details of the operation are as follows.

The abdomen is opened by a paramedian incision. A stitch of No. 3 chromicized catgut is tied about the round ligament on each side an inch from the cornu of the uterus. The anterior rectus sheath is then cleared, and a small puncture is made towards the outer part at the level of the fundus of the uterus. A special curved forceps is then passed outwards behind the peritoneum till the region of the internal abdominal ring is reached. The forceps then turns inwards in the base of the broad ligament till its point reaches the ligature on the round ligament. The peritoneum is then punctured, the round ligament suture grasped with the forceps and withdrawn along the track made by the forceps through the rectus sheath. The loop of round ligament is then made fast to the rectus sheath and the abdomen closed. The suture material used is No. 3 chromicized catgut, as this has been found satisfactory and no recurrence has occurred.

This operation has stood the test of time and has given complete satisfaction. It has therefore seemed unnecessary to change the technique of the operation or the suture material. In order to confirm these points, letters were written to patients operated upon from two to fourteen years ago, inquiring as to the result of the operation. The replies were illuminating and highly satisfactory.

Modifications of Operation

In order to test my own results I sought the opinion of the senior gynaecologists of the London teaching schools as to the nature of operation employed. All appear to employ a modified Gilliam operation, and find it eminently satisfactory. Many seem to prefer the use of silk, and some think it essential. Many, however, give up puncturing the rectus sheath, and draw the loop of round ligament up between the outer surface of the rectus muscle and the under surface of the rectus sheath. One operator pleats up the round ligament before drawing it through to the under surface of the rectus sheath, to which it is firmly attached by silk, thus approaching the technique of a fixation operation. Another operator pleats up the round ligaments and attaches them to the cornu of the uterus; while a third combines the ventral suspension of the uterus with shortening of the utero-sacral ligaments. Except for these three modifications, all do the modified Gilliam operation, and are satisfied with the results. The majority use silk sutures, but I have found chromicized catgut satisfactory, and think that silk introduces a possible element of sepsis.

Conclusions

Retroversion of the uterus is responsible for a considerable amount of ill-health in women. It may be prevented or cured during the puerperium by suitable exercises and treatment.

Congenital retroversion in single women often causes no symptoms and requires no treatment.

Congenital retroversion in married women does cause symptoms.

Retroversion acquired after labour or miscarriage is common, and the importance of preventive treatment is stressed.

Acquired retroversion often gives rise to symptoms, and requires correction by pessary or operation.

HAEMOPTYSIS: A NOTE ON PATHOLOGY AND TREATMENT

BY

H. V. MORLOCK, *M.C.*, M.D., M.R.C.P.

AND

A. J. SCOTT PINCHIN, M.D., F.R.C.P.

PHYSICIANS TO CITY OF LONDON HOSPITAL FOR DISEASES OF HEART AND LUNGS

Haemorrhage from organs such as the lungs and intestines, which are not accessible to the ordinary surgical methods of haemostasis, present a problem which is peculiar to itself; for not only does the practitioner feel more or less helpless, as he is unable to reach the bleeding point, but the psychological effect on the patient of bringing up large quantities of blood—whether from lungs or stomach—together with the knowledge that the lesion is not accessible, leads to a distress of mind which reacts unfavourably on the natural processes which should physiologically help to stay the haemorrhage.

The usual treatment recommended for haemoptysis is along the general lines suggested for the arrest of bleeding when not accessible to direct methods of haemostasis; these general methods have two objects in view, which are as follows. In the first place, to secure a local effect by the administration of drugs or other preparations which have the reputation for promoting clotting at the source of the haemorrhage by increasing the coagulability of the blood; secondly, to endeavour to rest the organ from which the bleeding is taking place, and by sedatives to quiet the body, ease the mind, and so cause a reduction in the rate of flow of the blood.

Preparations used in the first group, such as calcium, haemostatic sera, horse sera, etc., whilst possibly of some use are somewhat unreliable in their action, and, in consequence, though used as a routine, they are regarded as rather accessory, and there is a natural tendency to place most reliance on those methods which will promote mental quiet and physical rest to the organ from which the haemorrhage is proceeding, and thus give the bleeding vessel the opportunity of forming a clot sufficient to stay the haemorrhage.

Pathology and Mechanics of Haemoptysis

Should these methods be successful in stopping the haemorrhage the arrest is only slowly produced, with the result that some bleeding will continue to take place for varying periods, according to the size of the vessel eroded, while in addition any movement or disturbance of the patient may cause the haemorrhage to recommence, and as a result a considerable amount of blood will be found in the lumen of the organ concerned.

If the bleeding is intestinal the blood in the lumen will be drained into the intestinal tract, but in a haemoptysis the blood remains in the bronchus and can only be evacuated therefrom by the patient coughing; if, however, the patient has been forbidden to cough, and has been heavily morphinized, the cough reflex will be lost, and the blood will remain in the bronchus. It is well recognized that even during natural sleep secretions from the upper respiratory tract may be aspirated into the lower bronchi; further, it is admitted that, when unconsciousness is increased by morphine or basal anaesthetics, aspirated secretions may cause a pulmonary collapse. In the morphinized patient, with blood or blood clot in the bronchial tree, the chances of mechanical pathological changes taking place are very considerable.

If the quantity of blood in the bronchus is small, aspiration into the smaller bronchi and bronchioles will take place; further, if the patient gives a half-stifled ineffective cough, the blood will be evacuated from the

bleeding bronchus as far as the bifurcation of the trachea, or into the trachea itself, ready to be sucked down by the next inspiration, not only into the diseased lung, but into the healthy one as well. If the cause of the haemoptysis is a septic or a tuberculous lesion, organisms will be aspirated with the blood and will often give rise to a spread of the infection. This spread of the disease is indubitably seen to occur in septic conditions, and is not uncommon in tuberculosis. The reason that it does not occur more often is probably the dilution obtaining in large haemorrhages. If the haemorrhage is a copious one the coagulated blood often forms a clot within the bronchus, which clot is sometimes large enough to occlude a main bronchus, thus producing a sudden complete collapse of a lobe or even the whole lung; moreover, if by an ineffective cough the clot be extruded into the trachea, aspiration may take place into the main bronchus of the sound lung and cause a complete collapse of it.

Illustrative Cases

These mechanical pathological lesions are not merely theoretical possibilities, but are practical facts which we have ourselves observed and of which the following cases are examples.

Case I.—Male, aged 45, suffered from haemoptysis which was treated on general lines. A skiagram taken a few days later showed in the right upper lobe a lesion bronchopneumonic in distribution which was thought to be a tuberculous condition. Two weeks later a skiagram showed collapse of right upper lobe; on bronchoscopic examination we could see new growth occluding the upper lobe bronchus. There can be little doubt that the bronchopneumonic area seen on the first skiagram was produced by lobular collapse secondary to aspirated blood.

Case II.—Male, aged 22. Haemoptysis treated on general lines. When admitted to hospital definite signs at left upper lobe, with signs suggestive of a small area of bronchopneumonia in the right axilla. Sputum, T.B. +. To control the haemoptysis left artificial pneumothorax induced. Haemoptysis ceased and patient improved. Skiagram at this stage confirmed diagnosis of left-sided pulmonary tuberculosis, and showed a small area of bronchopneumonia of lobular distribution in right axilla. Artificial pneumothorax kept up. Sputum became negative. Area in right axilla cleared. We believe that the area in the right axilla was an aspiration spread due to the haemoptysis. It might be argued that it was the spread that led to the haemoptysis, but against this is the fact that it was controlled by the left-sided artificial pneumothorax. As no films were available previous to the haemoptysis the point cannot be definitely settled.

Case III.—Female, aged 40. Patient had a benign growth of left main bronchus. During an attempt to remove the growth by diathermy severe haemoptysis occurred, which was uncontrollable by diathermy and adrenaline. Within twenty-four hours the previously afebrile patient developed a high temperature, with signs of pulmonary collapse of lobular distribution. This was treated by expectorant mixtures and CO_2 inhalations, and the signs in the chest cleared. This sequence was repeated when a second attempt was made to apply diathermy to the growth.

Case IV.—Female, aged 23. Patient had the same type of growth, and diathermy treatment was followed by same sequence of events as in the previous case.

Case V.—Male, aged 16. Large haemoptysis, treated by absolute rest and morphine. On his admission to hospital the physical signs in the chest were those of complete collapse of the left lung. Skiagrams confirmed the diagnosis. The haemoptysis having nearly ceased, it was decided to risk further haemorrhage and to deal with the collapse by CO_2 inhalations and expectorant mixtures, with the result that the clot was expectorated, and in the course of a few days the left lung re-expanded to show a comparatively small tuberculous lesion in the mid-zone.

Case VI.—Female, aged 20. Patient was known to have a small unhealed lesion in right upper zone, and was admitted to hospital following a large haemoptysis which had been treated on general lines. A few indefinite signs were found in the right lung, and signs of complete collapse of the left lung. This was confirmed by skiagram. After a few days following the coughing of clotted blood, the left lung expanded completely, and the skiagram showed no evidence of any disease in it.

Haemostasis by Congo Red

Experience as exemplified by these cases has led us to the conclusion that the measures adopted under the second group—that is, the use of opiates—are not without danger, and this applies to any drug which definitely abolishes the cough reflex. It would seem not unnecessary that this point be stressed, for one seldom sees a case of haemoptysis in which a large dose of morphine has not been previously given. We agree that it is necessary to reassure the patient, to lessen his anxiety, and to put his mind and body as much at rest as possible, but we are convinced that it is bad treatment to order the patient not to cough, and deliberately to attempt to abolish the cough reflex.

It is well to point out that in early tuberculosis, in acute septic pneumonitis or lung abscess, or in haemorrhagic bronchiectasis, it is seldom that a haemoptysis is severe enough to endanger life, and therefore it is certainly not justifiable to employ a method which may by its application cause a spread of disease. On the other hand, in the advanced tuberculous case with large rigid-walled cavities, in malignant growth, and in leaking aneurysm the prognosis is in any case so poor that the objection to morphine does not hold.

If the use of sedatives is inadvisable it is certain that endeavour must be made to find some reliable haemostatic; those mentioned above have been in use a sufficiently long period of time to prove their deficiencies, though they certainly have their place in treatment. For some two years, in those cases in which haemostatics of this class had failed to effect a result, we have used an intravenous solution of Congo red. This haemostatic appears to have been little used in this country. It was recommended by Becker *et alia* in 1930 for use in haemorrhage.

The precise pharmacological action is not known, but Sachette and Osseladore[1] found that after the intravenous injection of neutral substances into rabbits, changes in the clotting time of the blood took place. In the beginning this change was accompanied by a numerical variation in the thrombocytes, and they formed the conclusion that the reticulo-endothelial system, especially the bone marrow, influenced the production of the thrombocytes.

Becker[2] *et alia*, from examination of the blood of their cases before and after the injection of Congo red, came to the following conclusions. That the Congo red produced: (1) an increase in the monocytes, (2) an increase in blood platelets, (3) an increase in blood fibrin content, and (4) a reduction in clotting time.

Technique.—The technique of administration is that of a simple intravenous injection, though, the colour of the solution being a deep red, some difficulty may be experienced in knowing when one has entered the vein. We have found from experience that dosage is of considerable importance. For an adult the dose usually given is 10 c.cm. of a 1 per cent. solution. This dose is often followed by a definite rigor of short duration which never gives cause for alarm. In an attempt to avoid the rigor we have tried smaller doses, and have found that although they may succeed in checking the haemorrhage temporarily they are not as successful in obtaining complete stasis as is the full 10 c.cm. dose. We have not so far had need to give a larger initial dose

than 10 c.cm., and from our experience in one case in which by an error double the dose was given we doubt if an increase is advisable, for in that case the patient developed a severe rigor with an alarming collapse; nevertheless, the haemorrhage which had menaced his life and had failed to be controlled by other haemostatics ceased instantly. We have found that occasionally the 10 c.cm. will check the haemorrhage for some time, and then slight recurrence occurs. In such cases the dose may be repeated, a further 10 c.cm. being given in four to six hours. In a large number of cases treated with this drug we have only had two in which the haemoptysis was not sufficiently controlled and other methods were necessary.

Other Methods

In cases of gastric and duodenal haemorrhage results have also been satisfactory, though perhaps not quite so certain as in haemoptysis. Other methods of obtaining stasis which have been suggested, such as the introduction of adrenaline into the bronchial tree, have not impressed us with their efficacy. Adrenaline may be introduced by the nasal catheter, crico-thyroid route, or by the bronchoscope. We have used the first two methods, but in any case the solution is so diluted with blood that effect can scarcely be expected; moreover, the bleeding point is usually so distant in the bronchial tree that it is unlikely that any direct result could be produced. Quite different are the severe and somewhat alarming haemorrhages which occasionally take place in the removal of polyps or a section of malignant growth via the bronchoscope; in this case adrenaline can be applied direct in large quantity over the bleeding area.

In the event of failure of other methods, the induction of an artificial pneumothorax is often successful in staying the haemorrhage. The cause of the haemoptysis must, however, first be considered. If the lesion is an early tuberculous one it will probably be successful, but in these cases the bleeding is usually not so severe as to cause alarm; if the lesion is in an advanced bilateral case artificial pneumothorax may be done as a temporary measure, even if it may be deemed inadvisable to keep it up permanently. In this type of case difficulty may arise in deciding as to the side from which the haemorrhage is coming. If an *x*-ray is available then the side showing a cavity is the most likely to be the offender, if not, one has little guide, as the ordinary methods of physical examination are not available. Often, however, the patient knows which is the worst side, and in many instances is able to indicate the side from which the bleeding is coming from subjective sensations. But as a contralateral artificial pneumothorax may be successful in stopping the haemorrhage, the position is not quite so difficult as it might appear. If the lesion is a lung abscess or a bronchiectasis, one must weigh up very carefully the urgency of the haemoptysis with the risk, especially in the former case, of producing a pyo-pneumothorax. Occasionally repeated haemoptyses call for some preventive measure. Such are frequently cases of dry bronchiectasis and chronic fibrosis, and an artificial pneumothorax or phrenic avulsion may be a useful procedure.

Conclusions

In a pulmonary haemorrhage the bronchi must be kept free. This can only be attained by leaving the patients their cough reflex. Some method of haemostasis is desirable, and in the failure of the ordinary methods Congo red has proved in our experience to have a very definite use.

References

[1] Sachette and Osseladore: *Giorn. Clin. Med. J. G.*, 1926, vii.

[2] Becker, J.: *Munch. med. Woch.*, 1930, lxxvii, 397; Werlekind, T., Becker, J., and Weinert, B.: Ibid., 1930, lxxviii, 2049.

OBSERVATIONS ON THERAPEUTIC MALARIA

WITH SPECIAL REFERENCE TO A CASE OF HAEMOGLOBINURIA

BY

C. B. BAMFORD, M.D., M.R.C.P., D.P.M.

ASSISTANT MEDICAL OFFICER, RAINHILL MENTAL HOSPITAL

Malaria is still the most popular of all forms of treatment for general paralysis in spite of the numerous attempts which have been made to supersede it by other forms of pyrexial therapy. Its popularity with clinicians is derived not so much from the high measure of complete recoveries achieved as from its relative immunity to serious accidents. In thus combining a moderate degree of success with comparative safety, it has proved itself superior to, and generally more acceptable than, any of its rival methods of treatment.

The truth of this claim has been amply borne out by our experience of some 300 cases of therapeutic malaria during the last ten years at Rainhill Mental Hospital. With a judicious selection of cases the number of untoward complications has been almost negligible, and the great majority of patients have succeeded in completing a course of ten rigors, with associated rise of temperature, at no greater cost to the patient than a mild prostration and some degree of anaemia. With adequate after-treatment both of these temporary set-backs have been successfully combated. In about 10 per cent. of the cases a mild degree of jaundice has been observed, associated with the anaemia appearing towards the end of the malarial course, but in all instances clearing up completely after the administration of quinine.

Both the benign tertian and quartan forms of malaria have been employed at different times, but of the two the former has proved the more satisfactory. In our experience the quartan is less reliable, and not so readily controlled with quinine. Despite this, relapses are of very rare occurrence. As will be noted from the accompanying temperature chart the rigors sometimes occur at much more frequent intervals than is characteristic of this strain of malaria. This phenomenon is by no means an uncommon experience with therapeutic malaria, particularly after many generations of the parasite have passed through the human host, and in our opinion is attributable to the fact that propagation is carried on solely by the asexual cycle for so many generations. Blood films examined from such sources show that the parasites mature at different periods, and in the same sample of blood parasites at all stages of development are to be seen. This offers some explanation of the irregular pyrexia, but, in addition, there is some evidence for thinking that there may be a personal factor also concerned.

Case Record

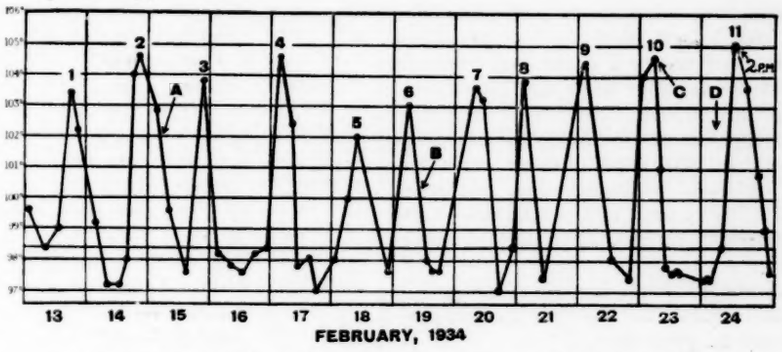
A case which provides an outstanding exception to this general experience has recently been encountered at Rainhill, and because of its unusual features it is deemed worthy of a detailed consideration.

G. H., a male, 46 years of age, was recently admitted to the hospital in a restless, excited, and grandiose state. He had typical delusions of grandeur, and clinically presented a classical case of general paralysis. Though he had few neurological signs, the clinical diagnosis was amply confirmed by serological tests. Thus the Sigma reaction in blood and cerebro-spinal fluid was strongly positive, there was increased protein in the cerebro-spinal fluid, and the large gold-sol curve read 5555554100. The mental symptoms had only been in evidence for just over a fortnight prior to his admission, and as he was in good physical condition there was no hesitation in prescribing for him a course of malaria. Before

inoculation with 5 c.cm. of malarial blood (2/2/34) his acute mental symptoms had considerably subsided, and he had regained to some extent his insight, a circumstance which rendered his subsequent management and nursing very easy. Eleven days after his inoculation (13/2/34) he had his first rigor, and this was repeated at roughly twenty-four-hour intervals for ten days, with an associated temperature averaging 104° F. On two occasions during the course blood films showed the presence of malarial parasites of the quartan variety with a relative increase in the mononuclear leucocytes. After the tenth rigor (23/2/34) quinine was given orally in mixture form (quinine sulphate, 10 grains t.d.s.). Twenty-four hours later (24/2/34), after he had received five doses of quinine, he had a very severe rigor, with a temperature of 105°, the highest recorded. This unexpected and unusual event gave rise to considerable misgivings, but quinine was continued. Two days later (26/2/34) his temperature rose again to 99.6° without any rigor, and the same day a definite icteric tinge appeared on his skin, whilst a little later his urine was observed to be unusually dark in colour. The following day (27/2/34) the jaundice had deepened, and the urine was diminished in quantity and of a deep red colour.

At this stage a sample of blood taken for examination revealed a marked degree of haemolysis, the serum being of a reddish hue instead of the usual straw colour. An examination of a blood film showed severe anaemic changes with anisocytosis, polychromatophilia, and punctate granular cells. There were numerous normoblasts and a few megaloblasts. Among the white blood cells there were myeloblasts and myelocytes in all stages. The urine contained a large amount of haemoglobin, and spectroscopic examination of both urine and blood serum showed the bands characteristic of oxyhaemoglobin. Another abnormal constituent of the urine, which was alkaline and of high specific gravity, was albumin, present in considerable amount, but there was no deposit of red blood cells or casts. The test for occult blood was strongly positive.

Temperature Chart of Malaria, showing Rigor occurring after Administration of Quinine. Rigors occurring at Daily Intervals (with the exception of the fourth day).



A = parasites in blood film. B = parasites frequent in blood film. C = quinine given. D = total of five doses of quinine given.

Progress.—This association of malaria, quinine, and haemoglobinuria strongly suggested a diagnosis of blackwater fever, and prompt and vigorous measures were taken to meet this very serious situation. Quinine was stopped (28/2/34), copious drinks were given, and large massive doses of alkalis administered, whilst a careful watch was set upon the quantity and colour of the urine passed. Remarkable to relate, despite this severe haemolysis the patient, who was very clear mentally, had scarcely any subjective symptoms. He made no complaints at all beyond his feeling of weakness, but stated at a later period that for a short time he had seemed a little deaf.

His condition responded exceedingly well to treatment. He passed large quantities of urine, which gradually cleared and became free from haemoglobin and albumin in four days (3/3/34). His blood picture improved *pari passu*, a distinct improvement in the blood films being observed very quickly (2/3/34). The progress of the blood condition may be gauged from the following reports.

2/3/34.—Blood film shows an occasional normoblast; anisocytosis still very marked. Haemoglobin 80 per cent.

3/3/34.—Blood count: red blood cells, 2,800,000 per c.mm.; white blood cells, 7,500 per c.mm.; colour index, 1.4. Leucocytes consist chiefly of myelocytes in various stages of development.

5/3/34.—Blood film shows an occasional normoblast, also many myelocytes. Red blood cells show less marked anisocytosis but severe achromia.

7/3/34.—Halometer reading of red blood cells, 7.32 μ. Blood count: red blood cells, 2,800,000 per c.mm.; haemoglobin, 60 per cent.; colour index, 1.07. Well-marked anisocytosis still, but no normoblasts seen. Considerable improvement on previous films.

16/3/34.—Blood count: red blood cells, 4,100,000 per c.mm.; haemoglobin, 70 per cent.; colour index, 0.85. Numerous reticulocytes seen in film. Halometer reading approximately 7.32 μ.

5/4/34.—Blood count: red blood cells, 4,600,000 per c.mm.; haemoglobin, 85 per cent.; colour index, 0.9. Only an occasional reticulocyte seen. Halometer reading 7.48 μ.

As will be seen from the report of the last blood examination, the man's blood picture approximated closely to normal. Clinically, his general bodily condition showed corresponding improvement, but at the time of writing (April, 1934) he still has a mild degree of tachycardia—a residuum, no doubt, of the profound degree of anaemia. His mental condition is very satisfactory, and he will shortly be discharged from hospital as fit to resume outside life and pursue his former occupation.

Discussion

The quartan strain of malaria employed in this case had already passed through two female patients, who throughout the course of treatment of the usual length had not manifested any unusual or alarming symptoms. Further, another male patient, inoculated simultaneously and with the same blood, ran the course in the usual way. The possibility of a previous malarial infection either of the malignant or benign form has been definitely excluded by investigation of the man's previous history.

If it serves no other purpose, this phenomenal case illustrates the obscurity with which the aetiology of blackwater fever is still surrounded. There would have been no hesitation in labelling this case as one of true blackwater fever if the malaria had been of the malignant variety, for in this case most of the characteristic features of this disease made their appearance in the usual sequence. Thus there was the malarial course terminated by quinine, and this, in turn, followed by the intravascular haemolysis, resulting in haemoglobinuria, jaundice, and anaemia. As in most cases, it is very puzzling to assess the importance of the part played by quinine in the production of this condition, but it is very significant that the symptoms appeared immediately after the administration of the drug, a feature of the aetiology which is much emphasized in textbook descriptions. Other causative factors of haemoglobinuria can be dismissed—namely, drugs (for example, potassium chlorate), over-exertion, excessive cold, as in the paroxysmal haemoglobinuria variety, in which in the last-mentioned case there would in all probability have been previous attacks.

Whatever may be the nature and source of the lysin producing such severe haemolysis, it would seem from the experience of this singular case that a condition identical with, or strongly resembling, blackwater fever can arise after benign malaria treated with quinine as well as after the malignant form. The complete absence of any reference to this possibility in all standard textbooks of medicine testifies to the extreme rarity of the condition.

In conclusion, I gratefully acknowledge my indebtedness to Dr. F. Murgatroyd of the Liverpool School of Tropical Medicine for his invaluable advice and interest, and also to Dr. E. F. Reeve for permission to publish this case.

PREVENTION OF INTRACRANIAL INJURIES OF THE NEWBORN

BY

ROLAND H. NATTRASS, M.B., B.S.Melb.

RESIDENT OBSTETRIC SURGEON, ST. MARY'S HOSPITAL, MANCHESTER

During a period of six months I performed necropsies on 107 consecutive natal and neo-natal deaths at the above hospital. Excluding fourteen of these cases which had perforations performed for varying causes, forty-three of the remaining ninety-three cases were found to have intracranial lesions—that is, in 46 per cent. of all these consecutive deaths there were intracranial injuries. The lesions present were lacerations of the tentorium cerebelli in most cases, and usually associated with haemorrhages or oedema of adjacent parts ; occasionally the falx cerebri was also lacerated.

There is not the slightest doubt that a large proportion of infants who survive have intracranial injuries ; the greater number of these will have no more than small tears of the tentorium and oedema of adjacent parts, but others may survive where relatively large haemorrhages have occurred, and I have seen a great amount of blood removed in two cases where I performed repeated bi-daily cisternal punctures for four days and the infants at the time of discharge appeared to be normal. Although the presence of these injuries in the newborn has been recognized as far back as 1829, their tremendous importance as regards infantile mortality has not been stressed until the last few years, and even now some modern obstetrical textbooks do not seem to appreciate their great importance.

The purpose of this short article is not to determine the treatment of these injuries, but to find methods by which these injuries may be prevented.

Mechanical Causes of Injury

Numerous theories have been brought forward as to the method of production of these injuries, but it is more commonly agreed now that a mechanical factor is the direct cause of the injury, due to alteration in shape and compression of the foetal head. This is accompanied by stretching of the supportive apparatus, particularly the tentorium cerebelli. This mechanical effect of alteration in shape and compression is most marked in cases where there is excessive moulding, or where the change in shape of the foetal skull is accomplished too quickly by an operative delivery.

If there is excessive moulding, the effect of lateral compression is to raise the vault of the cranium, so increasing the strain on the falx and tentorium. The prevention of this excessive moulding can be carried out only by efficient ante-natal care in watching for disproportion between size of foetal head compared to maternal pelvis, and performing induction of labour before term or, if necessary, Caesarean section at term. This is one big factor in preventing intracranial injuries.

Breech Deliveries

Another extremely common cause of these injuries is in extraction of the after-coming head in breech deliveries. Bourne in 1922 found that breech delivery is ten times more likely to give rise to cerebral injuries as compared with vertex deliveries. In my series every breech mortality (six) had, at necropsy, intracranial injuries. To prevent these injuries in breech deliveries it is most important that the still unmoulded head should not be drawn violently through the pelvis and so cause sudden compression and, in this way, rapid stretching of the cranial supports. Also the routine procedure of performing a lateral episiotomy in every case of breech delivery is a great help in preventing the sudden application of, and then sudden release of, compression on the foetal head due to an unstretched perineum.

Again, in breech deliveries care should be exercised in applying suprapubic pressure on the after-coming head, especially as this pressure is applied to the foetal skull in a vertical direction, and so is more liable to produce stretching of the cranial supports. Some obstetricians favour the routine application of forceps on the after-coming head as opposed to applying any suprapubic pressure on the head, thus avoiding pressure in a more dangerous direction.

Misuse of Forceps

As regards the use of forceps, these alone should not increase the risk of intracranial injuries unless associated with other factors as marked disproportion, or the wrong application of forceps, especially a fronto-occipital application. If forceps are being used, it is advisable to use axis traction, even in low forceps deliveries, to avoid premature extension of the head, which causes pressure of the occiput against the pubic arch with increased possibilities of intracranial injuries.

An unexpected cause of injury may result from the use of forceps of wrong size. One well-known firm sent to me a new pair of axis traction forceps with the widest diameter between the blades of exactly 2½ inches instead of the usual 3½ inches. Pulling on the forceps with this ridiculously small diameter would certainly cause intracranial injury, so it is a wise plan to check the separation of the blades from time to time, and also the shape of them, as after much use it is surprising how they can alter their correct shape.

Other Causes of Intracranial Injury

Another common cause of intracranial injury is the use of pituitrin in a case with incompletely dilated cervix or with a rigid perineum. The use of pituitrin in these cases may quickly force the foetal head through this obstruction, with resultant cranial injury. Again, precipitate labours are a frequent cause of similar damage, as the sudden compression followed by sudden release results in injury.

In premature labours one must be exceedingly careful in the delivery of these cases, as premature infants are notoriously prone to develop intracranial injuries, no doubt due to abnormal fragility of the vessel walls, and of the dura, etc., due to incomplete development of fibres of dura.

In delivering a normal case in the interval between uterine contractions, with the head on the perineum, one must be careful not to push too forcibly the foetal forehead against the pubic arch by a finger on the perineum or in the rectum, as such pressure may be enough, especially in a premature infant, to injure the supportive apparatus.

An indirect method in the prevention of these injuries is applicable in those cases with an irregularity or change in rate of foetal heart sounds. Usually these changes are due to compression on the foetal skull, and the treatment is not to apply forceps and deliver as rapidly as possible, and so increase the likelihood of intracranial injury, but to use chloroform, which will lessen the uterine contractions.

Efforts at Resuscitation

The last important point in the prevention of these injuries, or in this case I should say in preventing the increase of intracranial damage, is the manipulations during resuscitation. It is most important to remember

that practically all asphyxiated newborn infants which do not respond to treatment within the first minute or two are suffering from intracranial injuries, and that the older and violent methods of resuscitation, if used, will further increase these injuries by causing increased haemorrhage. If an asphyxiated infant is going to respond to any form of resuscitation, I am sure no more treatment is needed than to remove any mucus from the throat, and to encourage attempts at respiration by gentle traction on the tongue with tongue forceps at the rate of about twenty pulls per minute, together with the injection of a cardio-respiratory stimulant such as coramine or icorol.

Should the infant attempt to breathe, carbon dioxide is here of some use. The older methods of throwing the child from one hand to the other or of violently flexing its body should never be allowed to be used on an asphyxiated newborn infant, as all such infants should be considered as having potential brain injuries, and small haemorrhages may soon prove fatal if unnecessarily aggravated by vigorous manipulations during resuscitation.

RECURRENT VOMITING ATTACKS IN CHILDHOOD

WITH SPECIAL REFERENCE TO ALLERGIC FACTORS *

BY

K. H. TALLERMAN, M.D., M.R.C.P.

ASSISTANT PHYSICIAN TO THE CHILDREN'S DEPARTMENT, LONDON HOSPITAL; PHYSICIAN TO PADDINGTON GREEN CHILDREN'S HOSPITAL

Recurrent attacks of vomiting, or so-called "bilious attacks," occur with sufficient frequency in childhood to be of real importance in clinical practice. Though not usually causing prolonged illness, they are often most inconvenient to the children concerned on account of their repeated interference with school life, while they may at times be severe enough to necessitate admission to hospital.

Wyllie and Schlesinger[1] have recently discussed a group of cases of this type under the heading of "The Periodic Group of Disorders in Childhood." Such a title has certain advantages, the chief being the emphasis it lays upon the tendency of these attacks to recur. "Cyclic vomiting" is a term often used for the attacks, but this rather implies a regularly recurring cycle, and any absolutely regular periodicity of the attacks is actually very rare, if indeed it ever does occur. Again, these children are often said to be suffering from attacks of acidosis. This is mentioned in order to draw attention to the fact that there is usually no justification whatever for such a diagnosis, although acidosis may accompany severe attacks of vomiting. It is of course well known that at the time of attacks these children do suffer from varying grades of ketosis. The term "ketosis" is, however, by no means synonymous with acidosis, and in fact true acidosis is not usually met with in childhood except as a relatively rare accompaniment of such diseases as diabetes, nephritis, and acute gastro-enteritis.

The aetiology of the recurrent attacks of vomiting under discussion is by no means clear. They are probably a manifestation of some metabolic disturbance, and Josephs[2] has shown that they may be associated with a hypoglycaemia. This being so, the accompanying ketosis is therefore explicable on the basis of an insufficient supply of carbohydrates being available for the proper metabolizing of fats. In these patients the clinical improvement effected by restricting fats and giving glucose is evidence favouring this explanation. It should, however, be mentioned that not all cases show a hypoglycaemia, and that the theory of hypoglycaemia as an important aetiological factor has not been definitely established. Whichever is primary, the ketosis or the vomiting, the fact remains that between attacks these children are generally healthy, with, so far as one can judge, no evidence of ketosis or of any other metabolic disturbance, and one is still ignorant as to the exact factor which initiates an attack. It has been shown that some at least of the children can tolerate a definite ketosis produced artificially without an attack being precipitated.

It is recognized that gastro-intestinal symptoms may be a manifestation of allergy, and Rowe[3] regards gastro-intestinal food allergy as occurring most frequently in infancy and childhood. It appears quite possible, therefore, that allergy may play a part in the production of these recurrent attacks of vomiting, and that sensitivity to some foodstuff may be a determining factor in their onset. With this aspect of the problem particularly in view, the following study was undertaken.

Investigation of Forty Cases

So far as possible, all children were selected for study who came to my out-patient sessions in the Children's Department of the London Hospital between January, 1932, and August, 1933, suffering from recurrent vomiting attacks. Personal and family histories were investigated, all significant data in regard to clinical findings were recorded, various investigations were carried out, treatment was prescribed, and progress was followed in each case. An attempt was then made to correlate the findings in the entire series, and to draw conclusions therefrom. As in every case reliance had to be placed on the history obtained from the mother and upon her account of subsequent progress, it was obvious that accuracy in certain of the data was open to question. This, however, is invariably the case in any clinical study of this nature involving observation of out-patients.

The series here presented consists of forty cases; as is inevitable, certain other patients who were originally included defaulted before adequate observations could be carried out, and had therefore to be omitted. Of this series all the children attended quite regularly except three, each of whom for some time failed to come up as requested. The maximum period of observation was twenty-seven months and the minimum five months. The average period of attendance during which observations were made was sixteen and a half months; only two children were observed for less than six months. Reports of progress were subsequently obtained in regard to four of the children after attendance had lapsed.

Character of Attacks

It soon became apparent that there was no absolute uniformity in the duration of individual attacks, and, generally speaking, no regular periodicity in their occurrence. Often a child who was, at the time of first attendance, said to have an attack every two or three weeks, was found thereafter to have such attacks only at very infrequent intervals. Even in the history given by the mothers any account of regularity of attacks was infrequent. It is really impossible to make any useful analysis of the frequency or duration of these attacks. In most cases the vomiting was accompanied by headache, which was sometimes the most outstanding feature of the attack. This will be discussed later.

The average age at the time the children were first examined was just under seven and a half years. In twelve cases the attacks were said to have commenced before the age of three years, in thirteen cases the onset apparently occurred between the ages of three and five years, and in fifteen cases between the ages of five and ten years.

* From the Children's Department, London Hospital.

Precipitating Cause

In twenty-three of the cases the mother stated that she had no idea what initiated the attacks ; in the remaining seventeen cases various factors, such as fatty foods or excitement, for example, were suspected to be associated with the onset of an attack. From these histories, however, one is forced to take the view that any exact knowledge of what precipitates an attack must be uncommon. Excess of fats does, however, appear to be a factor in certain cases, and some of the children in the group observed have a dislike, possibly physiological, of fatty foods. Constipation may well be an associated factor, but discussion of this is apt to be misleading on account of the difficulty of obtaining a reliable history in this respect. It should be recognized that the criteria among hospital out-patients as to normal and abnormal actions of the bowels are extraordinarily variable and frequently fantastic.

Allergic History

The allergic history is a matter of some importance, in view of the fact that it had been considered that the attacks themselves might be of an allergic nature. Of the forty children, four gave a personal history, present or past, of some manifestation usually regarded as allergic—namely, asthma (one case) and urticaria (three cases). In eighteen cases—that is, 45 per cent.—a family history of allergy was obtained, this being very pronounced in five. As it seemed possible that such a proportion of family histories of allergic manifestations might well be obtained in any similar group of children, a control series was investigated. Forty children attending hospital as out-patients, who gave no history at all of bilious attacks or headaches, were taken without selection. None of these gave a personal history of any allergic manifestation. A family history of allergy was obtained in only ten—that is, 25 per cent.—of this control group, and in only three of these was such family history really pronounced. There is therefore a much higher incidence—almost double—of history of allergic manifestations in the families of the children suffering from vomiting attacks than in those of the control series of cases.

Skin Tests, Blood Counts, and Gastric Acidity Tests

Each child in the series was skin-tested with extracts of all the articles of food usually regarded as most commonly responsible for producing allergic phenomena. The extracts used for testing were put up by Messrs. Duncan, Flockhart and Co., and consisted of: wheat, oatmeal, rice, potato, egg white, whole cow's milk, cocoa, beef, pig group (pork, bacon, lard), crustacea (group extract), and fish group (cod, herring, haddock, whiting, plaice, mackerel). A control solution was also employed in carrying out the test. Before applying the test the arm was in every case gently washed over with spirit. The results were very disappointing. In only one case was a slight but definite positive reaction obtained, this being to egg ; in this case the mother had stated, on first bringing the child to hospital, that no food appeared to upset her. In five other instances certain reactions were regarded as possibly positive, but clear-cut positive reactions were not obtained, except in the one case mentioned. Skin testing in these children proved, therefore, to be of no assistance. It is, however, recognized that a negative skin test does not necessarily mean that a child is not allergic to the substance tested, and Rowe[3] states that skin reactions are infrequently obtained in cases of gastro-intestinal allergy.

Blood counts were carried out in all except one of the cases, because of the fact that eosinophilia is generally accepted as being an accompaniment of the allergic state. No child in the series showed a conclusive eosinophilia, but in seven cases the eosinophil count could at some time be regarded as slightly above normal, amounting to between 5 and 9 per cent.

It has been shown that in certain allergic conditions there exists a hypochlorhydria and a tendency towards alkalosis (Bray,[4] Beckman[5]). With this in view test meals were carried out on thirteen of the children under investigation, who were admitted to the ward for this purpose. These cases were selected as being the most likely to yield significant results in view of a definite associated family history of an allergic nature. The meal given was the ordinary Ewald meal, on an empty stomach. Possibly different results for secretion of acid might have been obtained if histamine had previously been injected, or if fractional test meals had been employed, as in Bray's[4] series of cases. At the same time, since a control series was treated in exactly similar fashion, it seems justifiable to make a comparison between the results of a simple Ewald meal in the two groups.

In seven of the cases investigated free hydrochloric acid was found to be absent. In two it amounted to 0.04 per cent., in one to 0.05 per cent., in one to 0.07 per cent., in one to 0.08 per cent., and in one to 0.17 per cent. The percentages given are those of mineral acid calculated as HCl. Taking the normal values of total acidity as lying between 40 and 60 (acidity of 100 c.cm. test meal in terms of cubic centimetres of decinormal acid) two cases gave normal and ten subnormal values, while in one a high total acidity of 77 was found. A control series of test meals was carried out on twenty children of the same class, who were in hospital convalescing from various medical conditions not of a digestive nature. In this series twelve had a complete absence of free HCl, and in four others the free HCl was below 0.1 per cent. ; six gave normal and thirteen subnormal values for total acidity, while in one a high total acidity of 85 was found. One cannot, therefore, from consideration of this series, argue that the absence of free HCl, or low total acidity, in children suffering from recurrent vomiting is of any particular significance.

General Physical Signs

Several children in the series had some entirely extraneous disability, such as a rheumatic cardiac lesion. Excluding such findings there were no abnormal physical signs except what was regarded as a raised blood pressure, which was found to be present in eight of the cases under review. Raised blood pressure as a feature of some cases of the type under discussion has already been observed by Wyllie and Schlesinger.[1] Its significance is not clear, but it may be noted, as they point out, that adults with essential hyperpiesia not infrequently give a history of migraine in early life. In thirty-seven of the cases whose urines were tested between attacks by Gerhardt's ferric chloride test, no diacetic acid was found: this is what one would expect.

Association of Headache with Vomiting

Special mention must be made of the association of headaches with these attacks of vomiting. Ophthalmic examinations to exclude errors of refraction were carried out in all cases of severe persistent headache. In no case did it appear that such errors were responsible for the attacks. It is well recognized that headache is usual at the time of such attacks, but in a number of cases the type of headache is such as to justify one in classing it as definitely migrainous. Again, certain cases under observation, which came for examination primarily because of symptoms typical of migraine (severe recurrent prostrating headache, sometimes accompanied by visual phenomena), complained of vomiting at the time of the attacks. There seems to be so close an association between these two

symptom-complexes that it is questionable whether in a number of cases they can be accurately separated. It is probable, therefore, that severe recurrent bilious attacks in childhood should be regarded as atypical manifestations of migraine.

It may be mentioned in this connexion that various observers regard migraine as being due to food allergy. Balyeat and Rinkel[6] are of the opinion that in about 30 per cent. of all patients with migraine, symptoms have developed during the first decade of life, and that many cases of so-called cyclic vomiting may actually be cases of migraine in childhood.

Treatment and Progress

These are being discussed under one heading on account of their interrelationship.

The general lines of treatment adopted may be stated to consist essentially of:

1. The ordering of a low fat diet with liberal carbohydrates. The mother received detailed instructions regarding the types of foodstuffs to be given.

2. The prescribing of luminal, to be given at the time of attacks of severe headache, to children prominently exhibiting this symptom.

In certain cases in which a particular article of food was regarded as a possible causative factor in precipitating an attack, this was eliminated from the diet for a short period. This did not appear to make any difference, nor, in fact, did the giving of such foods seem to cause any particular upset.

One is faced with the greatest difficulty in assessing the effects of treatment and the progress of the children because of the impossibility, already mentioned, of obtaining from the mothers accounts that can be regarded as strictly reliable. Recognizing these difficulties, which are inherent in any study of this type, it is possible to make only the broadest assessment of progress in relation to treatment. Three children were not given any special dietary instructions at all. Of the remaining thirty-seven the patients were dieted for periods ranging from six weeks to twenty-one months, the average duration of the dieting being nine and a half months. Extra sugar as well as very restricted fat was ordered in most cases at the outset; later it was usual only to restrict the fats. Apart from six of the children who had no further attacks from the time of first coming under observation, there remain thirty-four cases for consideration. Of these, twenty-seven improved under dietetic treatment, and the improvement was maintained subsequently when an ordinary diet was allowed. In seventeen of these patients the improvement was regarded as very marked. Three failed to show improvement, and in two cases the improvement was doubtful. Two patients improved under dietary treatment, but regressed when given ordinary diet without fat restriction.

However great the improvement may have been, and even if no attacks were observed while the child was attending, the time of observation hardly permits one to speak of an absolute cure having been effected. There seems, however, to be little doubt that, when children suffering from recurrent vomiting attacks are ordered a diet in which the fats are much restricted, a general improvement is usually effected, and this appears to be lasting.

Summary and Conclusions

A study was made of a series of forty children suffering from recurrent attacks of vomiting, and in particular evidence was sought as to whether or not the attacks were associated with an allergic state.

There was found to be a definite family history of some allergic disorder in a considerably greater proportion of the children in this series than in a second series of children taken as a control. Apart from this no definite evidence of allergy was found. Generally speaking, skin tests failed to reveal sensitivity to any of the common foodstuffs.

The association in childhood of recurrent vomiting attacks with migraine is emphasized and discussed. Severe vomiting attacks in childhood are probably atypical manifestations of migraine.

Treatment consisted essentially of restriction of fats in the diet. From the generally favourable progress made by these children it would appear that good results may be expected from this line of treatment in the majority of cases, and that the improvement effected is likely to continue after a normal diet has been resumed.

I should like to thank Dr. Panton and Professor Marrack, in whose departments certain of the investigations were carried out, Dr. W. G. Bray for helpful advice, and the Research Committee of the London Hospital, who kindly assisted me with a grant.

References

[1] Wyllie, W. G., and Schlesinger, B.: *Brit. Journ. Child. Dis.*, 1933, xxx, 1.
[2] Josephs, H.: *Amer. Journ. Dis. Child.*, 1926, xxxi, 657.
[3] Rowe, A. H.: *Journ. Amer. Med. Assoc.*, 1931, xcvii, 1440.
[4] Bray, W. G.: *Recent Advances in Allergy*, J. and A. Churchill, London, 1931, p. 165.
[5] Beckman, H.: *Journ. Amer. Med. Assoc.*, 1930, xcv, 1582.
[6] Balyeat, R. M., and Rinkel, H. J.: *Amer. Journ. Dis. Child.*, 1931, xlii, 1126.

NEW CASES OF WAR BLINDNESS DUE TO MUSTARD GAS

BY

REGINALD E. BICKERTON, D.S.O., M.B. Ch.B., T.D.

OPHTHALMIC SURGEON, ST. DUNSTAN'S

Surprise is often expressed by the lay public, and sometimes even in medical circles, that men are still being admitted to the benefits of St. Dunstan's organization as being blinded from the results of the war. That there are many men with damage to the brain from bullet wounds, which years later have resulted in injury to the brain tissue from the effects of scarring and traction, is readily understandable; that these changes cause damage to the optic paths and optic centres, and result in blindness, more or less, is also quickly appreciated when an explanation is called for. But such explanations are comparatively rarely required, because the general public thinks that, since the war ended sixteen years ago, any after-effect of head wounds in the way of blindness would have shown itself much earlier.

Numbers of clear, well-authenticated cases of this nature are on record. In this article, however, it is not intended to touch upon these, but upon a variety of war injury which causes an immense amount of untold suffering, years of treatment, and, unfortunately, progressive loss of already much impaired vision, and the occasional loss of eyes themselves. I refer to the men who were badly gassed by shell and cloud mustard gas, and whose conjunctivae, particularly the lower fornices, are as irritable and inflamed to-day as they were after the acute effects had more or less passed off in 1917, 1918, and 1919. Very considerable oedema of the conjunctiva and lids first occurred, which slowly settled down, leaving a chronic conjunctivitis of such nature and severity that one can but conclude that some change in the tissues has taken place resulting in the loss of some lubricating secretion present in the normal eyelids and conjunctivae. This change would appear to be the total destruction of the mucin-secreting glands, a change which seems to have taken place in those distressing cases of essential shrinking of the conjunctiva and xerophthalmia.

In the latter cases, however, corneal ulceration and definite losses of corneal tissue are not a prominent feature, whereas in the gas cases, corneal destruction—thinning, ulceration, and bulging of the weakened substantia propria of the cornea—itself is an ever-present symptom, especially the bulging and the giving way of the cornea.

I did not come across these changes in the early days of the use of gas, when lachrymatory gas, chlorine, bromine, and supposedly hydrocyanic volatiles were used, and I saw and attended the greater number of the gas cases arising during the first and second attacks in the Ypres sector. Uncomfortable and irritating as lachrymatory gas was, the effect upon the eyes and conjunctiva soon passed off, as did that of chlorine, but this latter had fatal effects upon chests, lungs, and bronchi. During these gas attacks there were no protective masks for the eyes, the only available protection being pads of gamgee tissue with tapes, the pad being dipped in thiosulphate of soda such as was then used in the Vermorel sprayers.

In addition to the number of cases in which the men's eyes, previously sound and normal, were directly and acutely burnt by mustard gas, and as a result the men were partly blinded, there have been many cases of old interstitial keratitis, in which the previous disability has been lighted up by the intense irritation and destruction of tissue resulting from mustard gas burning ; in some instances both eyes have become affected, although the interstitial keratitis first appeared only in one eye. While it is true that the original interstitial keratitis was not in any sense a war injury, the attack following mustard gas burning was, and should be so considered. There are also cases in which, after extreme burning, some of the mustard gas became absorbed and brought about deeper changes in the eyes, such as degeneration of the retina, presumably following an inflammatory retinitis, which showed itself primarily in night-blindness. (An example of this is included later in this paper.) Such cases have been known to follow heavy doses of phosgene gas, which causes very few local and immediate symptoms, but deadly after-effects ; not many have followed mustard gas burning.

Case Notes

The men in the following cases have all come to St. Dunstan's for admission or assistance owing to their wretchedly uncomfortable eye conditions, with progressive deterioration of vision in spite of continuous treatment. Most have lost their jobs through failing vision, and some are unemployable because of the appearance of their eyes, the uncertainty of being able to carry out any work without continual breakdowns for treatment, and, sad to relate, the objection of fellow workers. They have all come up within the last eighteen months.

Case 1.—The patient, aged **38**, was seen on July 12th, 1934. He was wounded on the Somme, was in hospital six months, and was then sent back to a Pioneer battalion. He was gassed in 1918 (mustard gas), and, as a result, spent nine months in hospital. His chest was affected. He began to lose his sight after being gassed, and it was for this that his pension was granted. Vision R., largest letter at one foot indefinitely. Vision L., largest letter at six inches indefinitely. Field of vision very contracted. This man was a sniper for two years after going on foreign service. Fundus shows marked retinal degeneration and pigmentation. Cornea and conjunctiva not markedly affected.

Case 2.—Patient, aged **50**, seen in April, 1933. As a result of mustard gas poisoning at St. Quentin in August, 1918, he was invalided out, and in hospital from August to November. His eyes have given trouble ever since, and broke down finally in February, 1929. He has been under continuous treatment since he was gassed. Left eyelids have been stitched up since July 15th, 1932, and are still closed. Right partly stitched in September, 1932, and remains so. Vision R. less than 1/60 ; vision L. still less. Both conjunctivae, when seen, were considerably congested ; right, roughened and discharging ; left, cornea still ulcerated. The man is quite unable to get work or to perform it, and is being trained as a blind man. He is under treatment at the Ministry of Pensions Hospital.

Case 3.—This patient, aged **44**, who was seen on June 7th, 1934, was gassed by shell at Ypres on September 27th, 1917. He spent seven months in hospital, and has been under treatment ever since. Vision R., 3/60 just ; vision L., largest letter at one foot. Right: corneal nebula, opacities on lens capsule, signs of iritis ; tension normal, no view of fundus. Left: scarred cornea, raised patches with clear cornea between ; eye tender and cannot stand daylight. Eyes and vision have deteriorated lately. He left the Ministry of Pensions Hospital, where he had been an in-patient, just before Whitsuntide of this year. He has been under treatment ever since being gassed, and had to give up his own business on January 26th, 1934. His chest is also giving trouble.

Case 4.—The patient, aged **37**, was seen on June 7th, 1934. He was gassed near Albert in 1918, and was in hospital as a result for six weeks, during which time his eyes were completely closed, and he was unable to open them for two weeks. Ulceration continued. Nebulae in lower half of right, and a very dense leucoma down and out in lower half of left cornea. Vision R., 4/60 indefinitely ; L., 1/60. Eyes have been inflamed again this year. In this case the gas shell burst in the entrance of a tunnel, in which the man was working a signalling lamp ; he thus had the full benefit of the mustard fumes.

Case 5.—A gunner, aged **44**, seen in February, 1931, was gassed at Armentières in 1918. Right eye: no perception of light ; tension minus ; cornea opaque and disintegrated in lower two-thirds, bulging and perforated ; anterior chamber collapsed. Iris adherent to wound. Left eye: perception of light, but cannot count fingers. Lower half of cornea opaque and roughened, lens capsule opaque, pupil bound down. This man's body, wherever there was moisture—armpits, thighs, etc.—also burned at the same time.

Case 6.—This patient, who was gassed in France in 1918, was seen on July 26th, 1934. He had never had any comfort with his eyes since he was gassed, nor did he do any further service. His eyes very badly ulcerated ; left stitched up for a year. He never goes longer than six weeks without having exacerbation, and has extensive calcareous deposits in both corneae. His own doctor has treated him for his eyes for nine years. Vision R., 2/60 barely ; L. less than this. Both corneae hazy, due to dense infiltration masking the whole cornea.

Case 7.—Patient seen on July 26th, 1934. He was gassed (cloud gas) at Villars in 1918, and, as a result, was in hospital from May to December, 1918. Both corneae badly burned ; nebulae, calcareous film right ; has been under treatment ever since being gassed, and was in a Ministry of Pensions Hospital from 1930 to 1931. Right vision: sees light only—or thinks he does ; left vision: 1/60 excentrically with head held very much on one side. Vision is still deteriorating.

These authenticated cases are sufficient to prove that much acute suffering is still being uncomplainingly borne, and all such cases will eventually be cared for by St. Dunstan's organization, and account for the recent admissions.

The first number has appeared of a new journal, *Acta Cancrologica*, published in Budapest under the general editorship of Dr. Paul Geréb. The articles are printed in English or French or German, at the author's choice, each being followed by a summary in all three languages. Publication will continue at intervals of one and two months, the annual set of twelve single or six double copies being bound in one volume. The English agents are Messrs. H. K. Lewis and Co. Ltd., 136, Gower Street, W.C.1, who will be pleased to send particulars of the journal to inquirers. The subscription is £4 for one year, and £2 2s. 6d. for six months.

Clinical Memoranda

NON-FATAL LIGHTNING BURNS

It has long been a canon of surgical practice that "if one-half the superficial area of the body of an adult is burnt, no matter of what degree the burn is, or one-third of the body of a child, the burn will end fatally."[1] Again, "involvement of one-third of the skin surface is a very grave matter and, if this includes the abdomen, the outlook is practically hopeless."[2] The following case, which occurred in August, 1933, is recorded both for the interesting clinical features and for the unusual satisfactory result.

Case Record

One evening, during a thunderstorm, two boys, aged 12 and 7, were about to enter a cowshed in order to milk several cows when the building was struck by lightning. The cow nearest to the door was killed instantly. (Subsequent examination by a veterinary surgeon showed no detectable abnormality.) The boys were thrown down and rendered unconscious.

The younger of the two was hurled several yards away from his brother. Apart from shock his injuries were slight. A certain degree of cerebral irritation supervened the following day; after a few days' complete rest in bed he made an uninterrupted recovery. It is interesting to note that, of the two, the younger boy showed a far greater degree of psychological sequelae, in the form of "terror-dreams," and during a thunderstorm all the signs of extreme fear, including, on a recent occasion, a temporary paresis of both legs and incontinence of urine lasting twenty-four hours.

The older boy, who was carrying a galvanized bucket in his left hand, was severely burnt. It would appear that the lightning "earthed" itself through the bucket. The burns extended all over the back, from the nape of the neck to the fold of the nates on both sides: down the left leg to the ankle: over the front of the thorax from the suprasternal notch to the xiphisternum, extending across the abdomen from the right iliac crest to become continuous with those on the back. The only free portion of the trunk was an area from the right axilla, two inches broad, down to the lower border of the ribs, and broadening an inch to the level of the umbilicus.

The left arm was charred black from the shoulder to the elbow; the muscle fibres of the biceps could be seen clearly. The fingers of the left hand, on the dorsal surface, were scarcely affected; the palmar surface was burnt to the second degree. In the earlier stages of recovery it appeared as if a permanent state of contraction of the fingers would result, independently of the healing of the flesh. Subsequent events have shown that this was probably a functional contracture of psychological origin and not due to any local or neurological damage. The head, right arm, and leg escaped injury. It was in the right hand that he had held a wooden milking-stool. The latter was found, without its legs, at the other side of the shed.

The patient was seen about twenty minutes after the accident. He was then unconscious, breathing stertorously, and the skin cold and clammy. The pupils were dilated. He had been totally incontinent. He was practically naked; the cuffs of his shirt, held by metal buttons (which were twisted), were all that remained of his upper garments. There were no arborescent markings on the skin such as have been described by some observers.

Response to Treatment

Consciousness returned in three to four hours. The wounds were cleansed gently by allowing a solution of 1 in 1,000 mercury perchloride to flow over the surface. Later, these were sprayed with collosol tannic acid solution (2½ per cent.). This was repeated at hourly intervals. Because of the extensive nature of the wounds, a 5 per cent. tannic acid ointment dressing on broad sheets of lint was substituted the next day, and changed daily during the following three weeks. Thereafter the intervals between changing the dressing were gradually increased. The last "black crust" separated at the end of the eighth week. From this time a 1 in 1,000 solution of acriflavine emulsion replaced the tannic acid dressing. There was very little sepsis except from the wounds on the abdomen. The temperature rose to 102° on the second day, and remained above normal constantly during the first three weeks. The pulse rate gradually increased out of proportion to the temperature and the heart-muscle sounds became progressively of poorer quality, probably due to a degree of myocarditis. A Nativelle granule grain 1/600 was given morning and evening for three months with no ill effects. The rhythm remained regular throughout.

No morphine was given during the period of shock. Contrary to the usual advice, strychnine sulphate grain 1/100 was given every four hours for the first week. Glucose drinks and glucose salines per rectum were administered at four-hourly intervals during the period of shock. On no occasion was it necessary to use an anaesthetic to allay the pain during the dressing of the wounds.

Permission for skin grafting was not obtainable. The only stimulating treatment available for the wounds was that afforded by the actual rays of the sun, and the scarlet red ointment of the *National Formulary*. The effect of the ointment was remarkable in producing a rapid epithelialization when it was applied around the circumference of the wounds and covered by lint soaked liberally in acriflavine emulsion.

The total time taken for complete healing was ten months. It is characteristic of electric burns that they heal slowly. Apart from those mentioned above there were no complications, and recovery has been uneventful. "Halimalt" and a simple mixture of glycerophosphates were given during convalescence.

The ultimate results are, on the whole, satisfactory. The boy now has the complete use of his hands, and, apart from a certain amount of contracture at the left shoulder region, there is every likelihood that, in time, he will become a useful agricultural worker.

E. Graham Elwell, M.B., Ch.B.

High Bickington, Devon.

[1] Howard: *The Practice of Surgery*, fourth edition, p. 171.
[2] Souttar: *The Art of Surgery*, second edition, p. 97.

AN UNUSUAL LARYNGEAL FOREIGN BODY

The following instance of impaction of a foreign body in the larynx is, I think, of sufficient interest to be worth recording.

A child, aged 10 years, was admitted to hospital an hour after having swallowed an unusual type of foreign body—namely, the "eye" component of a "hook and eye" appliance for joining dress material. The child had apparently been playing with the foreign body, when it was noticed to have a sudden spasm of choking and become hoarse. An *x*-ray revealed the foreign body at about the level of the pharyngeal pyriform sinuses, a little to the left of the middle line, with its longitudinal axis in the sagittal plane, and the "eye" component directed posteriorly. Direct laryngoscopy two hours later, under general anaesthesia, revealed the foreign body lying as to one-half over the anterior part of the left vocal cord and the remaining half below the left cord in the subglottic region, with the "eye" of the appliance directed towards the middle line. The slit in the horizontal limb had passed over the free margin of the true cord, so that the foreign body was encircling the true cord. When the position and relation of the foreign body had been appreciated, extraction with the forceps through the laryngoscope presented no difficulty. The foreign body was grasped by the forceps at the upper limb of the "eye," and gentle upper traction applied.

Manchester. F. Holt Diggle, F.R.C.S.

Reviews

BRAIN ABSCESS

Elaboration of the Jacksonian prize essay for 1926 has resulted in a volume on *Abscess of the Brain*, by Mr. E. Miles Atkinson.[1] The monograph is based upon twenty-three cases of brain abscess treated or personally observed by the author. All save one were of aural origin, and with one exception all were temporo-sphenoidal or cerebellar in situation. The series is admittedly rather small, and to supplement this and provide a complement of cases of different origin the author has drawn upon a wide field of literature, and provides an excellent bibliography. The anatomy and pathology of brain abscess are dealt with admirably in a comprehensive fashion. The author's own researches make him of the opinion that the spread of infection into the brain substance is by the perivascular route in a great majority of cases and less frequently by the process of retrograde thrombophlebitis, which is more favoured by transatlantic writers.

A full account of the general and local signs of brain abscess is given. Mr. Atkinson rightly emphasizes the necessity of repeated examination for the detection of transient localizing signs, and stresses the danger, which ought to be more widely appreciated, of allowing more than one or two cubic centimetres of cerebro-spinal fluid to escape on performing diagnostic lumbar puncture. But it is doubtful if the cerebro-spinal fluid can be estimated even approximately without a manometer, as he maintains, and surely the manometer is the best check against too much loss of fluid. His statement that tests of the visual fields have proved of no value to him will surely be amended in the future.

Mr. Atkinson's opinion that operation, or at least exploratory puncture, should be performed just as soon as the diagnosis of brain abscess is made, whether localizing symptoms are present or absent, will, as he expects, be contested by many. In spite of his agreement with others that Macewen's unsurpassed results were probably due to the long-standing nature of his cases before operation, and in spite of several recent papers advocating delay as long as possible, he maintains that the risks of such procedure are too great. It is difficult to understand such compelling dogmatism based on limited experience. The various methods of approach and drainage used by different writers —*quot homines, tot sententiae*—are fully dealt with. The author himself favours a double tube for drainage and irrigation.

The monograph is well produced and illustrated. If it lacks conciseness, that is probably due to the zeal of the author for his own personal contentions making his style a little reiterative.

ORTHOPAEDIC SURGERY

Dr. Georg Hohmann's book on Foot and Leg, their Disorders and the Treatment of Them, appeared first in 1923. A second and enlarged edition, with many more illustrations, has now been published.[2] The title "Foot and Leg" suggests, to English eyes and ears, that the book deals with the surgery of the whole lower extremity, but that is not in fact the case. Dr. Hohmann is director of the University Orthopaedic Clinic of Frankfort-on-Main, and he confines himself in this book almost entirely to deformities and to orthopaedic methods of treatment. He leaves out such maladies as tuberculous joint disease and osteomyelitis. While he describes and discusses various congenital deformities he omits club-foot, but includes, on principles of selection which seem obscure, chronic varicose ulcer of the leg.

In his preface the author points out that during the past decade there have been notable advances in the field of orthopaedic surgery, and that this volume is not simply a revision and amplification of the first edition, but an entirely new work, the outcome of thirty years' work on the foot and experience of thousands of patients with foot maladies. Several new chapters have been added on maldevelopment of the foot and toes, which are of practical importance, such as those on the processus trochlearis, on the sesamoid bones, and athletic injuries, especially those of the joints of the foot and ankle. The author is a follower of Max Lange, whose monograph on myogelosis, or muscle induration, we noticed nearly four years ago. (See *British Medical Journal*, 1931, ii, 536.) The book is written, he says, for the orthopaedic specialist as well as for the general practitioner.

Within the limitations aforementioned *Fuss und Bein* should be found useful to those seeking information about deformities of the feet. The numerous illustrations are clear and informative. The value of the book as a work of reference is seriously diminished by the absence of an index, which is the more felt because the table of contents is very laconic.

SERUM DIAGNOSIS OF GONORRHOEA

Serum Reactions in Gonorrhoea,[3] by Bertrand Rème, is a valuable addition to medical literature for a number of reasons. It gives a historical review of the evolution of the complement-fixation reaction in gonorrhoea from its commencement in 1906; the technique, taking reagent by reagent; its interpretation, sensitiveness, and specificity; and finally a most comprehensive bibliography.

Müller and Oppenheim are given the credit of being the first to apply, in 1906, the principles of Wassermann and Bruck to the serology of gonorrhoea. From that date numerous workers—all mentioned by name—have gradually evolved a test which to-day may be considered to be as valuable in gonorrhoea as the Wassermann reaction is in syphilis. A long and interesting section on the history is followed by one on technique; as regards the patient's serum, complement, and haemolytic system most workers are in general agreement—it is over the question of antigen that methods differ widely. In general, antigens may be divided roughly into those treated by physical and those by chemical means. The former include emulsions and filtrates, whilst the latter comprise those made by extraction with alcohol or ether or solution in soda or antiformin. A comprehensive table is given of the various types of antigen employed, together with the names of the workers who use them. As regards specificity, the question of cross-fixation with the meningococcus and *Micrococcus catarrhalis* arises. There seems to be a general consensus of opinion that this does take place: with the former it is not usually of much importance, since the differential diagnosis is easy, but in the case of the latter difficulties may arise. It appears possible that the solution may lie in testing the serum in question against antigens made from each kind of organism. Much more work, however, requires to be done on this question. The bogy of cross-fixation with a syphilitic serum is finally laid—it should never occur with a good technique.

The complement-fixation reaction will stand comparison with other laboratory methods in the diagnosis of gonorrhoea: excluding early acute cases, far more positive results are obtained with it than with films or cultures.

[1] *Abscess of the Brain: Its Pathology, Diagnosis and Treatment.* By E. Miles Atkinson, M.B., B.S., F.R.C.S. London: Medical Publications, Ltd. 1934. (Pp. 289; 45 figures. 21s. net.)

[2] *Fuss und Bein. Ihre Erkrankungen und deren Behandlung.* By Professor Dr. med. Georg Hohmann. Second edition. Munich: J. F. Bergmann. 1934. (Pp. 380; 326 figures. R.M. 24; geb., RM. 25.80.)

[3] *La Séroréaction Blennorragique.* Par Bertrand Rème. Paris: Masson et Cie. 1934. (Pp. 179. 30 fr.)

On the question of sensitiveness most workers agree that the test is usually positive: (1) after about the second week, (2) in nearly all complications such as arthritis, and (3) where there is a closed focus of infection. Opinions differ as to how long the reaction remains positive after cure, and what importance must be attached to a persistent positive remaining long after all signs have disappeared. Speaking generally, the reaction may be expected to return to negative in from six to twelve weeks following cure: where a strongly positive reaction persists the inference is that a focus of infection exists somewhere and must be sought for diligently ; cases which have suffered from complications often show a positive reaction for months or even years after all symptoms have disappeared, and may perhaps be considered on a par with " Wassermann-fast " syphilitics.

This book is essentially a digest of all the work that has been done on the subject, no author of any note being omitted. The various methods are described and the opinions of the various workers quoted. The reader is left, very largely, to decide for himself which are the better techniques and to draw his own conclusions, though here and there the author gives his own views and experiences. All who have to do with the management of gonorrhoea should read this valuable work ; if its publication succeeds in stimulating further interest in a subject which has not received the attention it deserves Dr. Rème will be in some degree compensated for undertaking a most laborious task. There can be little doubt that the value of the reaction is well established, and those who treat gonorrhoea without its aid are handicapping themselves severely: it is a curious fact that those who tend to belittle the value of the reaction are those who have least experience of it.

THE B.C.G. VACCINE

Dr. K. Neville Irvine, during his recent tenure of the Radcliffe Travelling Fellowship, spent two years visiting clinics and laboratories in Europe and America in order to collect data on the method of vaccination against tuberculosis introduced by the late Professor Calmette. His findings are incorporated in a short book entitled *The B.C.G. Vaccine*.[4] In this work Dr. Irvine deals with the main questions that have excited discussion among scientific workers. His method is to devote a separate chapter to each question, to review briefly but comprehensively the published reports on the subject, to mention sometimes the work under progress, and, after a critical assessment of the findings, to furnish a fairly definite answer to the question posed at the commencement. As a result Dr. Irvine concludes that (1) the B.C.G. is not a " virus fixé," but can (or could until recently) increase in virulence when cultivated under suitable conditions ; the parenthesis is necessary because the B.C.G. has shown signs lately of decreasing still further in virulence ; (2) the B.C.G. does occasionally produce progressive tuberculosis in laboratory animals, though it has never yet been definitely proved to have done so in man ; (3) a definite degree of immunity can be produced in cattle by B.C.G., though in other animals the results are doubtful ; (4) a certain undefined degree of immunity can be produced in man by the vaccine ; and (5) the vaccine should be given to children in tuberculous families to supplement the existing measures of control.

These views are very similar to those which have been advanced in the editorial columns of the *British Medical Journal* during the past few years, and are likely to meet with a considerable measure of approval. The real crux of the matter is how great and how lasting is the degree of immunity produced. At present the evidence does not suggest that it is either great or of long duration, so that the general application of the vaccine is out of the question in this country. Its use must therefore be restricted to specially exposed classes. Since these constitute but a small fraction of the total population, information on the value of the vaccine will be very difficult to obtain unless a properly organized programme is laid down and adhered to by such bodies as the Ministry of Health and the Medical Research Council acting jointly.

Dr. Irvine is anxious that research on man should be undertaken, and is fully aware of the statistical fallacies that have marred so much of the work carried out in other countries. His book, by providing a reasoned résumé of the highly controversial data on B.C.G., will not only attract a wide public, but may lead to a demand for more exact knowledge of the protective value of the B.C.G. vaccine.

CORRECTIVE PHYSICAL EDUCATION

In her book with this title[5] Josephine Langworthy Rathbone has made a conscientious attempt to produce a sound textbook for students of physical education to enable them to help the child who is suffering from faulty development or definite deformity, or who is otherwise maladjusted to take his part in the activities of normal life. Having reviewed the anatomy and physiology necessary for the understanding of normal body mechanics, the author describes the commoner types of faulty development and orthopaedic lesions, and explains how physical therapy may correct or help to compensate for these handicaps. She lays stress upon the importance of psychological factors in reconstructive work, and discusses the need for co-operation between home and school if corrective physical education is to have a reasonable hope of success. Systems of general exercises are given, and special exercises for different regions of the body. These are illustrated by " stick-man " diagrams, which show movements clearly, but, being small and spidery, are rather irritating in the text. A bibliography is appended, and a glossary in which the choice of words is curious. Why waste space in defining words in common use, such as " sleep," " normal," " obesity," " rigidity," " true," and give so little enlightenment about a word like " bacillus," which is merely mentioned as " a rod-shaped body "? The author does not claim to have contributed any original material to her subject, but she has its advancement very much at heart, and here presents her own knowledge and experience in such a way as to make it of practical benefit to students of physical education.

CHEMISTRY OF THE HORMONES

The Chemistry of the Hormones,[6] by Professor B. Harrow and Dr. C. P. Sherwin, is a useful monograph that summarizes current knowledge on this subject. It is divided into nine chapters, which deal with the following matters: thyroid and parathyroid hormones, insulin, pituitary, adrenal, male and female hormones, secretin, and plant hormones. The greater part of the volume is concerned with the methods used to isolate hormones from glands and other tissues. Adequate accounts are also given of the chemical properties of the hormones and our knowledge regarding their chemical structure, together with short accounts of the biological tests used

[4] *The B.C.G. Vaccine*. By K. Neville Irvine, D.M., M.A., B.Sc. London: H. Milford, Oxford University Press. 1934. (Pp. 70. 5s. net.)

[5] *Corrective Physical Education*. By Josephine Langworthy Rathbone, M.A. Philadelphia and London: W. B. Saunders Company. 1934. (Pp. 292 ; 153 figures. 12s.)

[6] *The Chemistry of the Hormones*. By Benjamin Harrow, Ph.D., and Carl P. Sherwin, D.Sc., M.D., D.P.H. London: Baillière, Tindall and Cox. 1934. (Pp. vii + 227. 1s. 6d.)

in the estimation of hormones. A selected list of references appears at the end of each chapter.

The introduction of a short chapter on plant hormones deserves special notice, for the authors here discuss the chemistry and actions of the remarkable substance auxin, discovered by Kögl and his associates in Utrecht about two years ago. Auxin controls the growth of growing plants, and is of interest because of the extraordinary intensity of its action. A measurable response is produced by one fifty-millionth of a milligram. Mention also is made of tokokin, the substance allied to oestrin which Butenandt has isolated from plants. These discoveries promise to throw new light on the comparative physiology of hormone formation.

We think that *The Chemistry of the Hormones* will be found more suitable for reference than for general reading. The subject is one that is changing every month, and the prime necessity of a monograph of this kind is that it should provide a reliable summary of the most recent work. This purpose the monograph under review fulfils excellently.

Notes on Books

Dr. H. L. Tidy's *Synopsis*[7] has established a place among the textbooks of medicine. The sixth edition, revised and enlarged, remains a handy volume of 1,100 pages, packed with information. Since the last edition, reviewed in our columns at the end of 1930, many advances have been made in medical knowledge, and the author has rewritten and brought up to date the sections on anaemia, nephritis, diseases of the endocrine glands, and deficiency disease. In these, as in other parts of the book, we are pleased to meet again the lucidity and crispness of style found in former editions. The author in his original preface suggested that the synopsis should not be used by students to replace a textbook of medicine ; but it has a distinct role where revision of all the essential material is required by students or teachers, and consultants who carry " Tidy " with them on their rounds will find it a never-failing source of accurate information. A full index of over fifty pages enables any subject to be readily found. The new edition worthily maintains the high standard of former ones, and should meet with the same success.

The eighth volume of the *Transactions of the Bose Research Institute, Calcutta,* contains further observations by Sir Chunder Bose on the movements and growth of plants.[8] He had already shown that in sensitive plants the conducting tissues transmit impulses in a manner analogous to nerve impulses in animals ; his latest researches establish the generalization that the motor mechanism is essentially similar in ordinary plants also. A second paper by Sir Chunder Bose bears on the problem of eliminating a voracious fish (bhetki), which is often present and does great damage in tanks used for stocking edible fish. He has discovered a vegetable extract which, in very dilute solutions, kills the bhetki without injuring the edible fish. An interesting paper by Mr. N. C. Nag contains observations on the influence of manganese in plants, in relation, more especially, to the inflorescence and to the proper functioning of green leaves. Mr. P. C. Basu contributes a paper on the racial affinities of the Mundas, one of the aboriginal tribes, which still retains its native purity of blood. Anthropometric details and cranial measurements are given, and the paper is illustrated with excellent photographs of the various forms of head and cranium met with in these natives. Other articles relate to variations in the growth of the stem and roots of plants, the effect of certain Indian drugs on the peristaltic activities of animals, the composition of oils from leguminous plants, and the absorption-spectra of the vapour of silver and lead haloids.

The Empire Social Hygiene Year-Book[9] represents the first annual edition of a record prepared by the British Social Hygiene Council of the work in progress in the British Dominions in combating venereal disease and in advancing the Council's policy of promoting social hygiene. The Right Hon. L. S. Amery, M.P., contributes a preface, in which he calls attention to the value of the educational approach, especially along the two lines of the study of biology and the use of the cinema film. He adds that there are few maladies more susceptible to individual cure or collective prevention, once their existence is frankly acknowledged, and once medical science, social legislation, and personal conduct combine to grapple with them. Sir Basil Blackett discusses imperial citizenship, its responsibilities and privileges, with emphasis on the possibilities arising from closer mutual co-operation. This annual record will in future replace the *Proceedings* of the Imperial Social Hygiene Congresses, which have hitherto appeared biennially. In the present issue Canada has been singled out for special study, and it is proposed that one Dominion or group of colonies shall be the subject of special survey in each succeeding edition. The relation of the Empire to international developments in social hygiene will be dealt with as occasion arises. The bulk of the volume is made up of surveys of the position in various parts of the Empire, which will be found very useful for reference purposes. A series of articles will also attract attention. They deal with such topics as the position of biology in education in Great Britain and the colonies ; propaganda methods and results ; the future of the film in education ; the international aspect of traffic in women and children ; the League of Nations inquiry in the East ; venereal diseases administration in Great Britain ; the International Labour Office and its work for seamen's welfare and coloured labour ; and the constitution of a British film institute.

The volume entitled *Clinical Miscellany*[10] comprises a series of twenty-two papers on various interesting cases, by ten members of the staff of the Mary Imogene Bassett Hospital, Cooperstown, New York. Among others mention may be made of a report on two cases of chronic meningococcaemia associated with nephritis ; chronic glandular infection of the foci caused by an organism resembling *Flavobacterium pseudomallei* Whitmore ; notes on the symptomatology of undulant fever, including one of short duration in a child of 9 ; and a scarlatiniform eruption followed by desquamation, associated with *Staphylococcus aureus* bacteriaemia.

A ninth edition (making 123,000 copies) has been issued of the *Mothercraft Manual,*[11] by Miss Mabel Liddiard, matron of the Mothercraft Training Society. This society, it will be recalled, was inaugurated by Sir Truby King, and the work is now carried on by Miss Liddiard, with Dr. R. C. Jewesbury as honorary director. The changes in this edition have for the most part been suggested by readers who have been in correspondence with the author at Cromwell House, Highgate, N.6.

Reprints of articles published in various periodicals during 1933–4 by members of the staff of the Middlesex Hospital Medical School have been bound up within one cover. A copy of these collected papers will be added to the Library of the British Medical Association.

[7] *A Synopsis of Medicine.* By Henry Letheby Tidy, M.A., M.D., B.Ch., F.R.C.P. Sixth edition, revised and enlarged. Bristol: John Wright and Sons, Ltd. ; London: Simpkin Marshall Ltd. 1934. (Pp. 1,112. 21s. net.)

[8] *Transactions of the Bose Research Institute, Calcutta.* Vol. viii, 1932–3. *Biological and Physical Researches.* Edited by Sir Jadadis Chunder Bose, M.A., D.Sc., LL.D., F.R.S. London: Longmans, Green and Co. 1934. (Pp. 266 ; 131 figures. 21s. net.)

[9] *Empire Social Hygiene Year-Book, 1934.* Prepared by the British Social Hygiene Council, Inc. First annual edition. London: George Allen and Unwin, Ltd. 1934. (Pp. 509. 15s. net.)

[10] *Clinical Miscellany.* The Mary Imogene Bassett Hospital, Cooperstown, New York. Vol. i, 1934. Springfield and Baltimore: Charles C. Thomas. London: Baillière, Tindall and Cox. 1934. (Pp. 206 ; 37 figures. 13s. 6d.)

[11] *The Mothercraft Manual, or The Expectant and Nursing Mother and Baby's First Two Years.* By Mabel Liddiard, S.R.N. With an introduction by J. S. Fairbairn, B.M., F.R.C.P., F.R.C.S. Ninth edition. London: J. and A. Churchill, Ltd. 1934. (Pp. 195 ; 32 figures, 8 plates. 3s. 6d. net, postage 4d.)

British Medical Journal

SATURDAY, OCTOBER 27th, 1934

HEALTH INSURANCE IN CANADA

At the sixty-fifth annual meeting of the Canadian Medical Association, held at Calgary in June last, a report was received from its Committee on Economics, of which Dr. W. Harvey Smith, a past President of the British Medical Association, was the chairman. That report, which contains the Canadian Association's "Plan for Health Insurance in Canada," has now been published in full in a Supplement to the *Canadian Medical Association Journal* for September. It will be found of intense interest and great importance to all those in this country who are concerned with the establishment of a general medical service for the nation based upon an enlargement of the present national health insurance system, as well as to those who in other British Dominions are considering the desirability of setting up some similar system. The report is in three parts. In the first part the meaning and object of health insurance are examined; a description of the development and character of the German, French, and English systems is given; the elaborate report of the American Medical Association is critically analysed; the British Medical Association's proposals for a general medical service are set out; and all the most usual general objections to health insurance are fairly and adequately considered. The second part of the report states fully the present position with regard to medical practice and to organized medical or health services in Canada as a whole and in its several Provinces. The third part contains the Canadian Medical Association's plan for State health insurance, with a reasoned exposition of the principles on which it is based, and of the methods which it is proposed should be used for their practical application. The whole of this third part, and considerable portions of Part I, will be of paramount interest to readers in Great Britain.

It is obvious that conditions in Canada are in many respects similar to those which exist in the United States of America: in others, however, there is a more distinct likeness to those prevalent in this country, particularly in the trend of thought and in administrative practice. This is especially true of the large towns and more populous localities; but even in very sparsely populated areas the needs to be provided for are not dissimilar from those in the Highlands and Islands of Scotland, which have been met by a specially organized medical and health service. The tenor of the whole report makes it evident that its authors have profited by both American and English experience. Negatively, they have seen from the American report on the costs of medical care, with its majority and minority sections and the disharmony to which they have given rise, how the subject should not be dealt with; and, positively, it is gratifying to note how nearly alike their conclusions and suggestions are to those which have been put forward for development in this country. Indeed, in its general outline the actual scheme proposed is practically identical with that set out in the British Medical Association's "Proposals for a General Medical Service for the Nation"; and the authors quote with approval, and incorporate in their scheme, the principles and conditions which were stated and discussed, as being absolutely essential, by Sir Henry Brackenbury in his address on "The Essentials of a General Medical Service" (reported in the *British Medical Journal* of March 4th, 1933, and since published as a B.M.A. pamphlet) and in his article in the *New England Journal of Medicine* of April last, to which we drew attention in our issue of June 9th (p. 1036). These are, in brief, the right of all registered medical practitioners to be members of the service, the absence of interference between doctor and patient, the appropriate participation of the profession in administration, separation of medical benefit from cash benefits, provision of a full medical service, administration on an area basis and not through approved societies. A further most important agreement with the British Medical Association's "Proposals" is the insistence that the indigent patient must be provided for as an integral part of the scheme, and must be dealt with as nearly as possible on the same lines as those who are able to contribute in the ordinary way.

On the initiation of national health insurance in Great Britain historical reasons and existing facts appeared to justify the establishment of approved societies for the administration of cash benefits, and similar reasons and facts make it extremely difficult, if not impossible, to provide residential institutional treatment as one of the ordinary and universal benefits under a compulsory contributive insurance scheme. Canada is happily free from these particular disadvantages, and, learning from experience in this country and elsewhere, will doubtless be able to establish a more complete and less imperfect scheme. Some less important but not negligible features of the Canadian proposals may be noted. It is recommended that insured persons should pay individually some part of the cost of necessary medicines, and that at least an early, and preferably a periodic, health examination of insured persons should be required. The remuneration of medical practitioners in each area should be according to the method which they collectively select, but the "contract-salary" method should be limited to areas with a population insufficient otherwise to maintain a general practitioner. The importance of the preventive aspects of medicine is emphasized: "It is not enough to render lip-service to the idea of prevention and then leave it all to the public health worker. State health insurance must mean the systematic practice of preventive medicine by the health insurance medical practitioners." Above all—and this is of great significance in view of certain American proposals—the general practitioner and not

the hospital must be the basis and the pivot of the service. "It is *not* intended to make the hospital a medical centre with full-time staffs, but an institution to provide hospital facilities for the use of the general medical profession in the proper care of their patients."

The entire medical profession of the Empire, as represented by the British Medical Association, will desire to congratulate the Canadian Medical Association on this admirable report, and to wish that Association success in pressing its proposals upon the governing and public health authorities of the Dominion and of its Provinces.

INTERACTION OF LABORATORY AND CLINIC

When the first suggestion was made for the allocation of money to a Medical Research Committee, it is easy to imagine that in after-dinner conversations there must have been much shaking of heads among those who knew something about it. Government money spent on research would have to give results which would appeal not only to the university mind but also to the clinicians, and would have to give these results fairly quickly. In all probability the proposal was carried through by the enthusiasm of those who had little more than vision to justify their action. Fortunately Mr. Lloyd George had vision, and so had his immediate advisers, Sir Robert Morant and Sir Walter Fletcher. But the scheme would undoubtedly have met with little success if there had not been men to work it possessed of shrewd and practical minds. One of these, Professor Edward Mellanby, was last year appointed the secretary of the Medical Research Council, and he has now published an account of his work in London and in Sheffield under the title *Nutrition and Disease*.[1] The book has the significant subtitle "The Interaction of Clinical and Experimental Work," and it would be hard to find a more convincing vindication of the value of laboratory research to the clinician when it is carried out under favourable conditions.

Perhaps the most scientifically complete part is the account of Edward Mellanby's contribution to the solution of the problem of rickets, and of May Mellanby's not less important researches on the cause and prevention of dental caries. By now this work is becoming fairly well known, and it need not be discussed again here. The next section deals with simple and toxic goitres, to our knowledge of which the author protests he has made no original contribution. His experiments, however, furnish a very clear picture. When iodine is withheld from a pregnant bitch and from her puppies after birth, the offspring develop large thyroids containing no colloid. The importance of iodine for the pregnant mother is well shown. The hypertrophied thyroid in a dog can be filled with colloid by giving iodine, and, provided the treatment is begun early and the hypertrophy is not excessive, the gland will become smaller. The giving of cod-liver oil, because of its iodine content, leads to a smaller thyroid gland; similarly, the administration of a large amount of codfish may greatly reduce the size of a goitre and change it to the colloid-containing form. To effect a reduction in the size of a hypertrophied thyroid in an adult dog a good deal of iodine must be given, for smaller amounts merely change the hyperplastic goitre to a colloid goitre. The administration of iodine in exophthalmic goitre produces a similar histological change, causing the thyroid to be filled with colloid and diminishing the symptoms, but there is danger that this newly stored material may be suddenly released. The essential problem of Graves's disease is to discover the mechanism of the release of the active principle from the gland.

In the later part of the book Professor Mellanby deals with the relation of vitamin A to infection and to nervous disorders. Here his argument is directed towards encouraging the investigation of diseases such as retrobulbar neuritis, subacute combined degeneration, and disseminated sclerosis from a new point of view—namely, that of vitamin A deficiency, though he considers that other factors are also involved. His view that the cause of beri-beri and of pellagra is a deficiency of vitamin A and not of vitamin B_1 and vitamin B_2 respectively is of great interest. He argues that the polyneuritis of beri-beri is quite different from avian polyneuritis, since the beri-beri nerve disorders are not rapidly cured by administration of vitamin B_1, and resemble more closely the peripheral nerve changes of vitamin A deficiency.

These lectures carry throughout the stamp of the author's vigorous personality. For example, he protests that "so much ill-judged criticism is levelled against any attempt to open up problems of disease from new angles, both by a certain type of clinician who demands nothing short of a direct cure, and by a certain type of biochemist with no appreciation of the difficulties of biological problems." His main theme, which he seeks to illustrate throughout, is that if the most productive results are wanted from investigators, and if medical treatment is to benefit from money spent on medical research, the investigator must be continually confronted with the problems of disease by having the supervision of patients; specific subjects for laboratory study are suggested in this way, and clinical experience helps in the interpretation of laboratory results. The author's position as secretary of the Medical Research Council gives him a unique opportunity to guide and supervise the application of these views, and the results of the next ten or fifteen years will be awaited with great interest.

In the Lane Medical Lectures, delivered at Stanford University, Professor J. C. Drummond gives an account of the present state of our knowledge of nutrition from a wider aspect.[2] There were five lectures, and in them is discussed the character of modern problems of nutri-

[1] *Nutrition and Disease. The Interaction of Clinical and Experimental Work.* By Edward Mellanby, M.D., F.R.C.P., F.R.S. Edinburgh and London: Oliver and Boyd. 1934. (8s. 6d. net.)

[2] *Lane Medical Lectures: Biochemical Studies of Nutritional Problems.* By J. C. Drummond. Stanford University Series, vol. iii, No. 2. London: H. Milford, Oxford University Press. 1934. (7s. net.)

tion, the part played by protein, the part played by fat, the fat-soluble vitamins, and the water-soluble vitamins. This account, where it covers the same ground as that surveyed in Professor Mellanby's book, is more orthodox—for example, in expressing the usually accepted views of beri-beri and pellagra, though Professor Drummond considers that pellagra is due not only to a deficiency in vitamin B, but also to a deficiency in protein. Many valuable tables are included, such as that showing the results of Corry Mann's experiments on the addition of milk and other supplements to a schoolboy's basic dietary, and the table summarizing M'Gonigle's evidence to explain the increased death rate following slum clearance in Stockton. It will be remembered that families, when moved to better conditions outside the slums, showed a higher death rate because their rents were more and they had less to spend on food. Professor Drummond's lectures will be found a valuable source of information.

BRITISH POST-GRADUATE MEDICAL SCHOOL

On March 17th (p. 487) we published an article on the new British Post-Graduate Medical School, describing the progress so far made with the scheme. It was written by the dean, Dr. M. H. MacKeith. We now have to announce with regret that Dr. MacKeith, within a year of his appointment, has found it necessary to retire from that office on grounds of ill-health. The governing body of the school has accepted this resignation, while expressing sincere appreciation of all the heavy work he has done for the school at its initiation. Public notice of the vacancy is given in our advertisement pages this week. A point to be emphasized is that this announcement is no mere formality: the governing body has decided to throw the post open to the medical profession at large. The dean is the principal executive officer and secretary of the governing body, responsible under its direction for arranging courses of instruction for students at the hospital and school in Ducane Road, Hammersmith, and their attendance at courses elsewhere ; for the administrative and financial management of the school ; for organizing the supply of information about the school and its work, both in this country and abroad ; and generally for advancing the aims and purposes of the school. The inclusive salary of the post is £1,800 a year.

All the professorial chairs and readerships are now filled, and the governing body has been singularly fortunate in the persons appointed to these positions. The new buildings will be completed by the end of this year, and it is hoped that during the first three months of 1935 the professors and their staffs will gradually get the machine into working order. They are due to take over the wards and out-patient department, etc., of the associated hospital from January 1st, so that the school may be open for teaching purposes by about April 1st. Meanwhile the school council has got into its stride, and now holds frequent meetings at which all the details with regard to courses of instruction and so forth are being carefully worked out. It is the earnest wish of all who have at heart the success of the British Post-Graduate Medical School that suitable candidates for the key position of dean may come forward.

INHERITED SMALL-POX

Inherited infection is commoner in small-pox than in any other acute illness, and the study of the effect of the present benign strain of virus upon the offspring of infected mothers, in the current issue of the *Archives of Disease in Childhood*,[1] raises many points of great interest. Drs. J. Pickford Marsden and C. R. M. Greenfield of the London County Council's small-pox hospital service report thirty-four cases of parturient women with small-pox observed by them over the last six years (out of a total of over thirteen thousand patients admitted to hospital during this period). These fell into four large groups as regards the time-incidence of the disease in the baby. Three instances of true congenital small-pox occurred with the rash present at birth, and in each case a period of about ten days had elapsed between the onset of the mother's illness and the estimated time of the appearance of the exanthem on the child. In a second group (eight cases) the child's rash appeared within fourteen days of birth, and in each case the mother at the time of parturition was either in the pre-eruptive stage of small-pox or in the early days of efflorescence, with a time interval of nine to twelve days between the onset of the mother's toxaemia and the appearance of the child's rash. In the third group the child's focal rash appeared on the eleventh or twelfth day of life, and in each case birth had occurred at the time of the outcrop of the mother's focal rash. The fourth group consisted of seventeen infants who escaped congenital infection, although born of infected mothers, seven of them acquiring small-pox subsequent to birth, always with the focal rash on the child fourteen days after the appearance of the mother's rash, and they were all either not vaccinated or vaccinated later in the incubation period. Of the remaining ten cases two were born during convalescence of the mother and found to be immune (unsuccessful vaccination on three occasions) ; seven babies born late in the mother's illness were all successfully vaccinated and did not develop small-pox ; and, finally, twins born during the first week of the mother's illness presented a very interesting phenomenon, for both were successfully vaccinated and one only developed small-pox, on the eleventh day of extrauterine life. This last example of inherited infection gives point to the view, borne out by a study of the whole series, that if not exactly fortuitous, it is more or less of an accident if infection is inherited. All the cases in the first three groups (seventeen) were infected, and all in the fourth group escaped the inherited mode of acquiring the disease. It is also clear that when both mother and foetus are infected they do not pass through the disease simultaneously, and the foetus has its own individual period of incubation. It is nowadays held that the common mode of infection in small-pox is by the respiratory tract, and about fourteen days afterwards the outcrop of the focal rash begins: this time interval was present in those babies acquiring their infection after birth. For those inheriting the disease a shorter period was commonly observed, which corresponds exactly to that found in rare instances of inoculated small-pox, and suggests that the bulk of foetal infections are acquired *in utero* at the time of the mother's "septicaemia" stage—

[1] October, 1934, p. 309.

that is, the stage of generalization of the virus. If the foetus escapes this it may similarly acquire infection at or about the time of separation from its parent, especially if the mother's rash is in its early stage when birth takes place. If the child escapes these two contingencies it escapes congenital infection, but generally, and in the absence of prompt successful vaccination, the disease, acquired by the more usual respiratory route, will show itself after the normal period of incubation. Lastly, there is evidence that if the foetus escapes intrauterine infection and remains *in utero* until the mother is convalescent from her attack of small-pox it may be born immune. This carefully worked out series of cases will be of great interest to those concerned with the whole mechanism of the inheritance of disease and immunity.

CYSTIC DISEASE OF THE LUNG

Although Fontanus and Nonnus each described a case of bilateral cyst of the lung as far back as 1638, and Wrisberg reported accessory lobes in 1777, congenital abnormalities of the lungs entered the realm of the clinician only with the development of chest radiology. The accessory lobe of the azygos vein has recently attracted much interest, but not sufficient attention has perhaps been drawn to cystic conditions in view of certain diagnostic and pathological facts which Debré and Gilbrin emphasize in a review of the subject.[1] Congenital pulmonary cysts may be unilateral or bilateral, single, multilocular, or multiple ; or part or the whole of the lung may assume almost a honeycomb appearance. The condition generally leads to stillbirth or to death shortly after birth, but it may remain latent for any number of years, symptoms, when they arise, taking the form of "major dyspnoeic crises," with cyanosis, violent dyspnoea, and intense inspiratory stridor. In older children and adults, however, dyspnoea is less prominent, and the suffocating attack, associated with pain in the chest, may lead to a diagnosis of spontaneous pneumothorax, which an *x*-ray photograph, if one is dealing with a single cyst, will appear to confirm. Careful examination of the latter should, however, enable the distinction to be made, for in the congenital condition the collapsed lung will not be seen, or its margin be ill defined ; and, further, the air cavity is generally irregular in outline and may show ramifications due to smaller pockets or vessels. It is difficult to explain the sudden onset of symptoms after years of latency and the varying course adopted subsequently. For instance, in one patient the first attack occurred at the age of 66, in another the first attack took place at the age of 6 years, but no other had occurred by the age of 15, only slight dyspnoea being noticed in the interval. The authors point out, however, that a similar course of events is not uncommonly found associated with congenital malformations elsewhere. They also quote an interesting case of an infant whose cyst was seen gradually to increase in size by noting the diminution of the atelectatic area above it by means of serial skiagrams. Cysts may undergo various pathological changes: open into a bronchus ; fuse, when multiple ; suppurate ; and multiple abscesses have been found surrounding a cyst. Malignant disease as a sequel has not been observed up to the present. Of great interest is the authors' discussion of the condition in relation to bronchiectasis. They point out that the histology of cysts is in the main similar to that found in bronchiectasis, and, basing themselves also on pathological evidence published previously, express the opinion that a congenital abnormality is at the bottom of all cases of bronchiectasis. As in all malformations infection occurs readily in the dilated bronchi (which find it difficult to empty), and this accounts for the onset of symptoms. They consider the rarity with which bronchiectasis follows the very common pneumonic sequels of measles, whooping-cough, and influenza as clinical support of their hypothesis, which incidentally is borne out by a paper by Sayé[2] describing tubular bronchiectasis (with symptoms) in the left base in each of two univitelline female twins aged 18 years. It would appear that, in spite of its rarity, congenital cystic disease of the lung has to be kept in mind in dealing with spontaneous pneumothorax—especially if it persists unaltered for a considerable time—and with atelectasis, and as a possible cause of abscess.

[1] *Presse Méd.*, July 11th, 1934, p. 1113.

THE HARVEIAN FESTIVAL

The annual Harveian commemoration was celebrated by the Royal College of Physicians of London on St. Luke's Day (Thursday, October 18th) in the usual manner. In the afternoon the Oration was delivered by Dr. James Collier, and an abridgement of this appeared in the opening pages of our last issue. In the evening the Harveian dinner was held at the College in accordance with Harvey's injunction: "Once every year there shall be a general Feast kept within the said College for all the Fellows that shall please to come." The President, Lord Dawson of Penn, took the chair in his robe of office, and the company included many distinguished guests, some of whom were there in a twofold capacity—as Fellows of the College and as representatives of other bodies. After the memory of William Harvey had been toasted in silence, the health of "The Guests" was proposed by the President. Among those whom Lord Dawson gracefully welcomed by name were Lord Greville and Lord Gorell ; the Bishop of Southwark and Chancellor Ponsonby, who had officiated at the service in Marylebone Church that day ; Dr. Edwin Bramwell, President of the sister College in Edinburgh ; Sir Holburt Waring, President of the Royal College of Surgeons of England ; Dr. Robert Hutchison, President of the Royal Society of Medicine ; Dr. J. S. Fairbairn, President of the British College of Obstetricians and Gynaecologists ; Dr. Ralph Noble, physician to the psychiatric clinic, Royal Prince Alfred Hospital, Sydney ; Dr. E. K. Le Fleming, Chairman of Council of the British Medical Association ; Professor Edward Mellanby, Secretary of the Medical Research Council ; Mr. Hugh Lett, Chairman of the Committee of Management of the Conjoint Examining Board in England ; Mr. G. H. Gater, Clerk of the London County Council ; Sir Squire Sprigge, Editor of the *Lancet*, and Dr. N. G. Horner, Editor of the *British Medical Journal*. The concern, said Lord Dawson, of those within their fellowship was not only knowledge and its furtherance, but such applications of that knowledge as would adapt it to social needs.

[2] *Anales de Med. Int.*, Madrid, 1932, i, 13.

Medicine must play an increasing part in the constructive statesmanship that had for its aim the health and contentment of mankind. It had to take into account not only the sick man but the man who was up and doing. One by one new services were arising for the promotion of health, and it was here that education had a frontier with medicine. In agreement with Dr. Cyril Norwood he would put physical education in the forefront of the whole educational system, thus bringing the schoolmaster and the doctor into responsible partnership. He coupled with the toast the names of Lord Gorell and Mr. Maurice Healy, K.C., who each replied with entertaining speeches. The health of the Harveian Orator was proposed by the Senior Censor, Professor Langdon Brown, who, speaking as a friend of thirty years' standing, said that Dr. James Collier's Oration that day had given a taste of his quality—that gift of illuminating the dark corners of some problem with a flash of insight. After Dr. Collier's reply the library was visited, where the Harveian librarian, Dr. Arnold Chaplin, had set out a number of valuable books and MSS.

TREATMENT OF MÉNIÈRE'S DISEASE

In a study of forty-two cases subjected to division of the auditory nerve for the relief of vertigo, Dr. Walter E. Dandy[1] shows that the operation can now be performed safely, for there was no fatal case and the attacks of vertigo invariably ceased. The early operations recorded on the eighth nerve were performed for the relief of tinnitus, but the results were discouraging, because the risk was great and the effect on this symptom uncertain. Dandy found that in his series the tinnitus disappeared in twenty cases and diminished in a few others ; so it appears that a patient has about an even chance of obtaining relief from this symptom also. The chief technical advance which has contributed to the safety of the operation is the evacuation of cerebro-spinal fluid from the cisterna magna before the cerebellar hemisphere is elevated to expose the internal auditory meatus. After opening the dura mater a spatula is passed over the cerebellum towards the cisterna magna and the arachnoid sheath opened, in order that the cerebro-spinal fluid may be released and aspirated. The cerebellum then can be elevated without using pressure, thus exposing the cerebello-pontine angle. The eighth nerve is exposed by opening the overlying cisterna lateralis. Various methods can be used for the actual division of the nerve, but the essential precautions are to avoid injury of the facial nerve and of the internal auditory artery or any small branches. In three cases Dandy has endeavoured to preserve the residual hearing by dividing only the vestibular portion of the nerve, and he has found that up to the present this has been successful ; but in many cases the patient is so deaf in the affected ear that conservation of the hearing is not important and the chance of relief from tinnitus would be of greater value. Transient diplopia followed in four cases, as has been observed by Cairns and Brain, but no satisfactory explanation has been provided for this complication, though it is significant that this symptom is sometimes associated with those of the classical group which comprise Ménière's syndrome. There is also a transient vertigo in many cases after the operation ; it does not, however, last longer than a week to ten days, usually much less. Dizziness on turning the head may persist for several months, but the attacks of vertigo always cease. From a careful analysis of the histories of the cases and study of the symptoms before and after operation, Dandy concludes that the lesion responsible for Ménière's syndrome lies in the eighth nerve itself and not in the semicircular canals as has been commonly assumed. He has never observed the same effects after operations in the posterior fossa performed for other conditions, and concludes that the post-operative dizziness is related to the disease, of which the pathology is still unknown. This careful study of a comparatively large series of cases shows the operation to be safe in the hands of a competent neurological surgeon and to be of practical value. In spite of the remarkable success which has been obtained by the perfection of his surgical technique, it may be questioned whether at least two of the conclusions reached by Dandy are valid. In the first place, he says that no other treatment, either curative or palliative, is worthy of mention. A. Hautant[2] has shown that a proportion of cases of essential vertigo may receive benefit over long periods by relief of intralabyrinthine pressure. The operation is a simple one of opening either the horizontal or the posterior semicircular canal by an exposure through the mastoid process. The good effects of this method of treatment have been confirmed in this country also, and they appear to invalidate the second conclusion of Dandy that the lesion lies in the eighth nerve rather than in the semicircular canals.

[1] *Arch. Otolaryngol.*, July, 1934.

A SURGICAL SCHOLARSHIP

A notice by the Association of Surgeons of Great Britain and Ireland appears in our advertisement pages inviting applications for a surgical scholarship to the value of £350, to be held for one year. The object of the scholarship is to enable the holder to pursue a definite line of research or to study surgery in specified clinics at home or abroad. It is designed for the assistance of young surgeons, possibly not yet on the staffs of hospitals, and the wording of the condition applying to it is left vague so that candidates may propose to carry out any kind of surgical work. For example, laboratory or clinical research in some special branch may be proposed alone, or may be combined with travel. The scholarship may also be utilized solely as an assistance in travelling to various surgical centres. A scholar is expected to devote the greater part of his time for a year to the scholarship, but the holding of a part-time appointment does not preclude election to it. Candidates holding such posts as registrarships are not usually considered suitable owing to the amount of time they must give to routine work.

We have received a cable from Professor D. W. Carmalt-Jones, President-Elect of the New Zealand Branch Conference to be held in Dunedin from February 26th to March 1st, 1935, saying that visitors from home will be welcome.

[2] *Bull. de l'Acad. de Méd.*, June 26th, 1934, p. 933.

NATIONAL RADIUM

THE ANNUAL REPORTS

The fifth annual reports of the National Radium Trust and the Radium Commission differ slightly as regards the periods to which they refer, the first relating to the twelve months ended March 31st, 1934, and the second to the year August 1st, 1933, to July 31st, 1934. The financial statement of the Commission, however, covers the same twelve months as the Trust. Taken together, the two reports afford important information as to the supplies of radium in the country as a whole, and indicate the uses to which it is being put.

Changes in the membership of the Trust and Commission which occurred in the year under review were noted in these columns last year (*Journal*, 1933, ii, 746). It has also to be recorded now that the retirement of Professor Woodburn Morison created a vacancy in the membership of the Trust, and that Professor A. J. Hall has been co-opted in his place. Moreover, Professor T. G. Moorhead succeeded Lord Dawson as President of the British Medical Association, and therefore became a member of the Trust. Lord Dawson still remains a member, however, in his capacity as President of the Royal College of Physicians of London.

Comparatively small purchases of radium were made during the year under review, totalling 174.295 mg. The amount of the element owned by the Trust on March 31st, 1934, was just over 19 grams. Towards the end of the twelve months the Commission submitted detailed specifications covering in all 1,870.96 mg. of radium and 290 containers. It was clear that in addition to the not inconsiderable amount of radium in hand in containers of types no longer required, a substantial purchase of new radium would be necessary, and negotiations were commenced for this. Since the commencement of the Trust's work a sum of £11,501 has been derived from interest on investments, including £1,535 in respect of the year 1933–4. Against this, the total administrative expenses of the Trust, including £297 for that year (of which £134 represents payments made to the National Physical Laboratory for the testing and measurement of radium and containers), amount to £2,707, leaving a balance of £8,794. Of this sum, £1,500 is on loan to the Radium Commission, being the balance still outstanding of advances amounting to £2,500 made to the Commission in 1929–30.

Two points of a more general nature are included in the report of the Trust. Reference is made to the scheme of research now in progress at the Radium Institute, and under the supervision of a special governing body with the status of a joint research board of the Medical Research Council and the Department of Scientific and Industrial Research, concerning beam therapy, in which a highly penetrating beam of rays is directed upon a malignant growth from a large quantity of radium, termed a "bomb." It is obvious that the results of this investigation may have an important bearing on the work and policy of both the Trust and the Commission in relation to the provision of radium treatment on a national scale. The Cornish radium, which was lent by the Trust to the National Physical Laboratory, has been employed during the year in an attempt to enable gamma ray dosage to be measured in terms of the röntgen, the isometric unit adopted internationally for the measurement of *x*-ray dosage. Preliminary measurements indicate that in the case of gamma rays scattered radiation plays a prominent part. It appears likely that with further experience it will be possible to specify conditions under which the röntgen can be realized in the gamma ray region with sufficient accuracy for present purposes. The investigation is being continued.

Development of Centres

The Radium Commission has the following objectives: promotion of the treatment of the sick throughout Great Britain; advancement of knowledge of the best methods of rendering such treatment; and the securing of due economy in using radium therapeutically. The second of these has been dealt with in earlier reports, and the appraisal of results will be dealt with when sufficient statistical evidence has accumulated. The Commission's view that patients should come to well-equipped centres, rather than that radium should be taken to patients, has been strengthened by experience since it was originally set out in the first report of the series. Reference was made in last year's report to the advisability of using in a single scheme all the radium in a centre, including that provided by the Commission with that possessed independently by the centre. The implied unity of organization is less easy at some centres than at others, but the avoidance of wastage of "radium time" is only possible in institutions which can provide bed accommodation for a large number of patients.

The Commission has urged this in previous reports, and in the present one regret is expressed that so few signs of the expansion of bed accommodation at the centres are yet observable. In some centres difficulty in complete pooling arises from the fact that, especially in those instances in which the hospitals are unprovided with "pay" beds, it becomes necessary to make arrangements for a proportion of the hospital's own stock of radium to be used outside its buildings—for example, in nursing homes. In such instances, it is added, the provision of "pay" beds—a practice which has been steadily extending during recent years—may help to solve some of the difficulties attending admission of patients to these centres. Only by avoiding wastage of "radium time" and by provision of adequate bed accommodation can the existing centres perform fully one of their essential functions as units in a national radium service—namely, providing for the needs of a population larger than that normally served by the hospitals in which they have been established. If, it is argued, radium therapy of cancer is confined to the populations normally served by the hospitals selected to act as centres, large areas of the country will remain unprovided for, and it seems essential that arrangements should be made with the authorities of neighbouring voluntary and municipal hospitals to secure a larger clientele for this particular service. The establishment of a larger number of centres is not a practicable alternative, owing to the comparatively small number of hospitals which are provided with all the other services necessary to the proper functioning of a radiotherapeutic centre conceived on modern lines. It is added that the modern tendency to combine treatment by *x* rays with that by radium may be expected to act as a further incentive to concentration of treatment within the centre. Looking further to the future, and assuming that beam therapy by large masses of radium realizes the hopes of those now having experience of it, an additional reason will exist for organizing the administration of treatment in the way advocated by the Commission.

Work at the Centres

Such concentration of radiotherapy at a centre was from the first fully adopted by Aberdeen. The radium officer is not only able to organize the actual details of the radium treatment, but in virtue of his appointment as McRobert research lecturer in malignant disease, comes into contact from the educational side with post-graduates and with medical students in the final year of their studies. The value of courses of instruction in the diagnosis and treatment of malignant disease to men who are going into

general practice cannot be overestimated. This centre has for many years been recognized as a research centre under the Medical Research Council, and the increased radium facilities have enabled it to undertake further investigations. The physics department is showing great activity in the work of the radon requirements of the centre, and in devising solutions to the many problems of radiation dosage which confront the therapeutist. At Birmingham the General Hospital has been a research centre under the Medical Research Council since 1922, and the help given to actual treatment by the services and investigations in physics have been noteworthy. The Radon Laboratory is under the general supervision of the professor of physics ; an increasing use is being made of radon by the centre and by the hospitals in the surrounding district which it serves. Considerable developments in deep *x*-ray therapy are foreshadowed at this centre. No appreciable improvement in the administrative difficulties having occurred at Bristol, it has been found necessary to withdraw a further 350 mg. of national radium during the past year. The Cardiff centre is well organized, and there is at present no waiting list of cancer patients. The follow-up system at this centre is so complete that nearly all the patients have been traced. Financial reasons prevented the appointment of a specially qualified whole-time radium officer at the Dundee Royal Infirmary, and it has been necessary to return the supply of the national radium and to close the centre.

At the Edinburgh centre it has become evident that a mass unit of one-third of a gram of radium has produced good results, and it has been arranged that a unit of one gram shall now come into operation. A new organization, the Cancer Control Organization, has been formed for Edinburgh and South-East Scotland to assist the National Radium Centre. It has already made a grant of £100 towards the cost of the radium mass unit, and provided financial support for the publication for the first time of the full statistical analysis of the follow-up department for cases of malignant disease. There are two national centres at Glasgow—namely, at the Western Infirmary and the Royal Infirmary. Both continue to do well. The Leeds centre is also doing well, and its allocation of radium has been increased to a total of 1,506.5 mg. The medical director of radium therapy at this centre will now be able to develop and evolve methods for the application of radium at a distance in the treatment of cancer patients. Supplementary *x*-ray treatment of patients, who in the first instance are treated by radium, will be facilitated in future at this centre by the provision of a new department of deep *x*-ray therapy.

Owing to the reorganization of the Liverpool Radium Institute and Hospital for Cancer, the National Centre at the Royal Infirmary has not been functioning to its full capacity. In view of the lessening local demand for radium, and of the great need for it in other centres, it has been arranged that a fraction of the radium here shall be returned for use elsewhere. At Manchester the Radium Institute was in existence long before the Commission came into being, and had entered into obligations with neighbouring hospitals, which extend as far away as Chester and Denbighshire. Although national radium is used only within the Holt Institute and the Manchester Royal Infirmary, this practice of using radium outside these institutions cuts across the policy of concentration, which has been one of the main planks in the structure of the Commission's efforts. Sheffield is doing well, and has received a further loan of 250.5 mg. of radium element. A feature of considerable interest at this centre has been the installation of an *x*-ray apparatus with a new type of *x*-ray tube, the department being under the direction of the radium officer. By this means he is able to control to his complete satisfaction the dosage to patients who, for the most part, have had radium treatment first. Its design permits the dismounting of the tube, should the hot filament burn out ; a new filament can be introduced and the tube put into action again in the course of a few hours. Bearing in mind the high cost of *x*-ray tubes operating at high voltages, the performance of these new tubes is being watched with great interest.

Regional centres are operating well at Lincoln, Norwich, Plymouth, Southampton, and Stoke-on-Trent, although the first of these is not yet in full working order. Recognition has been extended to the Royal Infirmary, Bradford, the Burnley Victoria Hospital, the Leicester Royal Infirmary, and the Wolverhampton Royal Hospital, where radium treatment has been in operation for a number of years. These institutions have willingly entered into obligations to the Commission, including the taking of clinical records in proper form, the rendering of statistics annually, and the observance of the rules concerning the care and custody of radium and the protection of the staff which handles it. It is expected that these institutions and others which will similarly receive recognition in the future will, by their returns, make a considerable contribution to the information which the Commission is steadily accumulating as to the value of the treatment of cancer by radium.

One-gram Unit Therapy

In 1932 the Commission placed one-gram units of radium at the disposal of the Cancer Hospital, the Middlesex Hospital, and University College Hospital, in order to find out the utility of these units in the treatment of malignant disease, the work being co-ordinated by a standing clinical committee. This committee has now reported that 251 cases were treated at the three institutions between April 1st, 1933, and April 1st, 1934. All have been treated under identical conditions as regards filtration, radium skin distance, and shape and size of beam, the only variants being the duration and frequency of dosage and the distribution of fields. The majority of these cases allow of histological verification of the diagnosis ; they can also be readily observed, and the results of treatment be assessed without difficulty.

Available Supply of Radium

The total amount put at the disposal of the Commission by the Trust to date is approximately 20 grams. Of this, 18 grams is on loan to centres, the Medical Research Council, and the National Physical Laboratory, and recently an additional 1.87 grams has been allocated to the national centres at Edinburgh, Leeds, Manchester, and Sheffield. The Commission, by arrangement with the King's Fund, exercises control over the three one-gram units, the property of the Fund, mentioned in the previous paragraph, so that the total amount of radium under the control of the Commission amounts to 23 grams. There are at present thirteen national radium centres and five regional radium centres. There is an additional amount of radium in the country under other control, and it is estimated that the total quantity available for treatment is now about 70 grams. It is expected that more will be required in the future, partly because of the increased number of patients seeking radium therapy and partly because of the spreading opinion that the use of large doses in units and bombs is more effective.

The London School of Hygiene and Tropical Medicine has issued, as a stencilled document of thirty-two pages, a classified catalogue of books in the library relating to natural science. This is the first of a series of class catalogues which it is proposed to issue from time to time ; periodical publications and pamphlets are not included. Copies will be sent gratis to interested persons on request to the librarian of the school (Keppel Street, W.C.1).

Nova et Vetera

THE DEATH OF MAURICEAU'S SISTER

To few women is it given to have the manner of their passing recorded for posterity with such wealth of detail and with such eloquence as that with which François Mauriceau, the great seventeenth century accoucheur, describes the death of his sister from ante-partum haemorrhage. A macabre chance decreed that he himself should play the chief part at her death-bed, and in his eager and vivid prose he tells the story.* It is in the nineteenth chapter of the first book, *De la Perte de la Sang*, that he relates the history, and he certainly could have devised no better method of impressing upon his readers the point he wished to make—that a woman attacked by a severe haemorrhage late in pregnancy should be treated by version and delivery without delay. It is of interest to us as showing the slow diffusion of knowledge in those days. Mauriceau himself quotes Guillemeau, who antedated him by about half a century, as having advocated the same treatment, yet he writes as if he had to contend (as no doubt he had) with an almost universal dead weight of contrary opinion, or else no opinion at all save a passive fatalism. When one reflects that "Celuy qu'on croyoit estre le plus habile de tous les chirurgeons qui pratiquait à Paris les accouchmens" could do no better when summoned to the bedside of a woman with ante-partum haemorrhage than to pronounce that "C'etoit une femme morte, a laquelle il n'y avoit rien à faire que de luy faire recevoir tous les Sacramens," it moves one to wonder what must have been the practice of the commonality of the profession in those days. It is difficult for a translation to do full justice to his fiery and passionate rhetoric, for he writes as though the scene were enacted before his eyes, and as if he lived again the hours of suspense he passed at the bedside of his dying sister.

The more to confirm these things I will recount from my own experience a case the memory of which is so painful that the ink with which I now write to make it known that the public may profit by it, seems to be of blood. For on this pitiful and fatal occasion, to my sorrow there was shed before me the very semblance of my own [blood].

It was nine years ago that my own sister, who had not yet reached 21 years of age, was pregnant of her fifth child. Being in good health till then, she had the misfortune to injure herself (though in appearance only slightly), having fallen upon her knees. Her belly struck the earth a little, after which she was a day or two without hurt, which made her neglect the rest which was so necessary for her. But the third day after her hurt at eleven o'clock in the morning, she was suddenly taken with strong and frequent pains in the belly, to which was at once joined a great loss of blood. This caused her to send incontinently for the midwife, but she, not understanding her trade so well as she might, said when she was come, that she must be patient till the uterus was opened by the pains, assuring her for the rest that she had nothing to fear, and would soon be delivered from her trouble, more especially as the child presented favourably. For three or four hours she thus filled her with vain hopes, until (the flow of blood continuing abundant) the pains began to leave her and the poor woman fell several times into a faintness. Thereupon the midwife demanded that a surgeon should come to save her.

They came in haste to my house to warn me, but unhappily not finding me there, went to seek him who was thought to be the cleverest of all the surgeons who practised midwifery in Paris. They led him immediately to the lodging of my sister, it being then about four hours after midday. But having seen the state in which she lay, he contented himself by saying that she was a dead woman for whom there was nothing to be done save to give her the Sacraments, and that she could in no way be delivered. To this the midwife agreed, believing that the opinion of a man so justly famous was not to be doubted. When he had made this prognosis, not wishing to remain longer, he returned to his house leaving in this deplorable state and without succour this young woman, whose life, and that of her child, he could without question have saved if he had delivered her at the time. This could easily have been done, as one may see by the rest of the story.

After the advice of a man of so great a reputation joined to that of the midwife, all the people who were present believed that since M. Such-a-One could do nothing, there could be no remedy for so great an evil other than to trust in God who alone could do all things. They tried thenceforth as best they could to comfort my poor sister, who was longing with great earnestness to see me, to know if I should pronounce the same sentence, and if her trouble, which grew worse and worse, was without remedy. For the blood flowed continually in great abundance. At last I returned to my house, where they had so long sought me to tell me the evil news. Hearing their tidings I ran in haste to her house, and when I had come there I was met with such a pitiful spectacle that my soul was shaken to its depth with a variety of conflicting emotions. After having regained my senses a little, I approached the bed, where my sister had just received the last Sacraments. She implored my help many times, saying that she had no hope unless from me. I learned from the midwife all that had passed, and she told me the opinion of the surgeon who had seen her more than two hours ago (for it was then quite six o'clock), and I saw that the blood flowed in abundance without ceasing. She had already lost more than three quarter measures and a dozen dishes full in the two hours that had passed since the surgeon had left her. Which blood would have remained in her body had she been delivered at that time, and would have saved her life. I saw also that from one moment to another she was seized with attacks of faintness which grew worse and worse, which told me that she was in greater peril than she would have been had she been delivered two or three hours ago, before she had lost all her strength with the blood which flowed continually. Desirous of knowing if it were true that she could not be delivered, I felt on examining her the internal orifice of the womb opened so that I could easily pass in two or three fingers. I then caused the midwife to examine her again to find out if the orifice were so when the surgeon had said she could not be delivered. She told me yes, and that it had always been in that state since he had left. When she had declared it so, I saw at once her ignorance and what it was that had troubled the surgeon. I told her I was astonished they should both have been of this opinion, as the matter seemed to me quite contrary, and that the surgeon could easily have delivered her then if he had wished, as easily as I could now. And in truth I should have done so on the instant, but my mind so long trembled on the resolution I was forced to take when I had lost hope of all other assistance. What hindered me was not the prognosis of the famous surgeon who had persuaded all those about her that she could not be delivered (for it is temerarious to resist the advice of those held as oracles), but the person of the sufferer who was my own sister and whom I loved very tenderly. So shaken was my soul with passion to see her die before me from a prodigious loss of blood, coming from the same source as my own, that I could not summon my resolution on the instant. This it was which caused me to send again in haste to the surgeon, praying him to return to the house, so that, showing him how easily the operation could be done, and making him confess that there is never any hope in such cases unless it is done at once, I might resolve him to deliver her instead of abandoning her to despair and her child to perish with her. But he would not return, however much one prayed and besought him, excusing himself always that there was nothing that could be done. When they told me this I sent to another surgeon I knew, with whom (if he had come in time) I could have agreed about the need for an operation, as I could have made him confess that it was possible. But by misfortune he could not be found at his house. During all these comings and goings a good hour and a half passed, during which time the blood flowed without ceasing, as also the faintings grew worse and worse. It was then that, seeing myself without hope of the help I had sent for, I took the resolution to deliver her at once. But it was in truth a little too late for the mother. For if I had had strength of purpose enough to do it as soon as I arrived, there was still then a good hope of saving her as I did the child.

* *Traité des Maladies des Femmes Grosses.*

Having put two of my fingers within the internal orifice of the uterus, I followed them with a third, and little by little with the ends of all the fingers of the right hand, with which I dilated the orifice enough to give passage to the whole hand. Which can be done easily on such occasions because the abundance of blood mollifies and relaxes the whole womb. When I had gently entered my hand I found that the child presented by the head and that the waters had not yet flowed away, which obliged me to break the membranes with the end of my nails. This being done, I immediately turned the child to take it by the feet, by which I drew it out very easily. And this I did in less time than it takes to count from one to a hundred. And I protest on my conscience that I have never in my life accomplished a delivery more promptly, more easily, and with less violence to the mother, who during the operation complained not the least in the world, though she had at the time good judgement and a full knowledge of what I did to her, but felt much relief after I had delivered her, and thereupon the loss of blood ceased.

The child I withdrew alive and it was instantly baptized by a priest who was in the chamber, but it was too late to save the life of the mother, who died an hour after from a fainting such as she had had before her delivery. The flow of blood in truth ceased, but too little remained in her to withstand the frequent syncopes, which she assuredly could have done if this surgeon who saw her first had delivered her three hours before. For since that time she had lost without exaggeration more than twenty dishes of blood, and four or five of these would have sufficed to save her, seeing that she was a young woman of sound constitution suffering from nothing till she was seized with this fatal accident. She was delivered at seven o'clock in the evening, but because she had lost all her blood before the operation it was without avail, and she died an hour after, speaking always with good judgement till the moment when she died, which was at eight o'clock the same day.

It is interesting to note the importance attached to the completion of delivery, throughout the narrative. Mauriceau was apparently unaware of the efficiency of the undelivered half-breech as a haemostatic plug. Though one shrinks a little from the idea of manually dilating a cervix with a placenta attached to it, yet, remembering the insistence of all these past masters of the art upon the utmost gentleness in manipulation, together with their own extraordinary dexterity, it is unlikely that they did much harm. At all events it was a great improvement on the policy of reaching for one's hat and sending for the priest.

Mauriceau goes on to impute the basest of motives to the surgeon. He does not believe that it was sheer ignorance which drove him precipitately from the lying-in chamber, but " qu'il fuit tant qu'il peut les accouchmens perilleux et sujets à mauvaise suite ; ce qu'il fit d'autant plus volontiers, qu'il se rencontra dans la chambre de ma sœur une Dame de consideration . . . laquelle il accouchoit ordinairement . . . il aima mieux se conserver l'estime de son ancienne pratique . . . que de faire chretiennement son devoir." It is a horrible accusation, which one can only hope is false. Whatever the truth of the matter—and criticism after two and a half centuries should be charitable before all things—one cannot but echo most heartily Mauriceau's regret that he could not summon " assez de force sur mon esprit " himself to deliver immediately her " qui etoit ma sœur, que j'aimois très-tendrement." Not yet 21 and pregnant of her fifth child! Poor girl!

A. J. Hawes.

MEDICAL DEFENCE UNION

ANNUAL GENERAL MEETING

At the annual general meeting of the Medical Defence Union the president, Mr. E. Pearce Gould, moving the adoption of the report and financial statement, said the figures showed that during the last year the number of cases dealt with represented more than one for every ten members. The council, he continued, had added to the completeness of its representative character by the appointment of a vice-president who was a dental practitioner. It had also considered certain matters raised by criticism, and as a result there would be submitted to a later meeting that day revised articles of association, which embodied not only the requirements of recent legislation, but indicated more clearly than did the previous articles the current practice of the Union.

The meeting adopted the report and financial statement, and re-elected the retiring members of council, Dr. W. S. A. Griffith, Dr. V. A. Jaynes, and Mr. J. Furneaux Jordan.

Report of the Council

This report states that the number of new members elected was 1,080—an increase of ninety-six over the figure for the previous year—and that at July 19th, 1934, the total membership was 17,963. The assistance of the Union was invoked in 1,842 cases. In addition to the usual cases concerning fees and unpaid accounts, members sought legal guidance in such matters as the provision of *x*-ray examination for osteopaths and the sterilization of female patients. Following the discussion at the last annual meeting, the council was submitting for acceptance certain alterations in the existing articles of association, and also a new clause giving power to the council to undertake a case which had been begun prior to the date on which the member joined the Union but while he was entitled to the privilege of membership of some other society having objects similar to those of the Union. The report points out that while members are afforded protection in respect of claims made as a result of the act or omission of a locumtenent, whether that deputy is a member of any defence society or not, the same does not hold good in the case of an assistant. The appointment held by the latter is more or less of a personal character, and it should always be possible for the member to ensure that the assistant becomes a member of a defence society.

Report of the Solicitors

The Union's solicitors (Messrs. Hempsons) emphasize the desirability of members taking advice from the Union as early as possible in any proceedings, particularly in cases of complaints under the National Health Insurance Acts. The report states that while representation by counsel or a solicitor is not permitted in inquiries before the Medical Service Subcommittee, a member is entitled to the assistance of the Medical Defence Union in dealing with preliminary correspondence, and this expert guidance in the initial stages often secures a more favourable result than would otherwise be obtained. A total of 148 cases was referred by the council during the year ; twenty-six of the fifty-seven involving charges of negligence were a direct response to members' claims for fees, and fifteen of these were abandoned when the defendant learnt that the Union was concerned. Among the cases of alleged negligence were several claims for damages resulting from a swab being overlooked at operation, and a claim in respect of loss of sight against a member who, instead of referring the patient to his ordinary doctor or panel practitioner, gave wholly gratuitous and friendly advice. As regards the former, while the checking of swabs is, in the opinion of the solicitors, a nursing duty for which the nurse should be responsible, the court has not yet recognized this, nor has a clear-cut decision been obtained. Members attached to hospitals, therefore, should make sure that there is a reliable and accepted system for the checking of instruments and swabs.

The total income of the Union for the year 1933 was £19,026 11s. 9d., and the expenditure £16,044 4s. 5d.

Amendment of Articles

At an extraordinary annual general meeting of the Union held the same day the revised articles of association, with certain amendments made by the meeting, were adopted.

New Zealand

[From our Correspondent in Wellington]

The Cancer Campaign

The annual meeting of the New Zealand branch of the British Empire Cancer Campaign was held in Christchurch, and the reports of its various activities received much public attention. The special research work at the medical school is to be continued for seven years under the direction of Dr. A. M. Begg. The cancer clinics, conducted once, or, in some instances, twice a week by the society in the larger hospitals, are most successful in attracting patients and in the results secured, which are steadily improving, and are a bright and encouraging contrast to those obtained less than a decade ago. The records and statistics have been most carefully prepared, and are now numerous enough to warrant the beginning of statistical research. At the time of writing Dr. Moran of Sydney, adviser on radiotherapy to the Government of New South Wales, has arrived in New Zealand, and, under the auspices of the New Zealand branch of the Campaign, will address medical men and also the laity on the cancer problem. He believes that as in some strange way civilization has brought greater susceptibility to the disease, so the evolution of man's intelligence must in time produce a cure. In the meantime, here as elsewhere, the medical profession, with all the means it possesses, must do its utmost to relieve suffering while researchers slowly track down the disease.

Influenza in Great Britain and New Zealand

The Director-General of Health for New Zealand (Dr. M. H. Watt) refers, in his annual report for the year ended March 31st, 1934, to the recurring question whether an epidemic of influenza in Great Britain is in due course followed by an outbreak of the disease in New Zealand. He summarizes recent evidence, which indicates that while Australia and New Zealand follow each other closely in this respect, there is no such relation between Great Britain and the Antipodes. Indeed, for the period 1923–8 the curve for England and Wales takes a diametrically opposite course to those for Australia and New Zealand. Thus 1924 and 1927, peak years for England and Wales, were marked by a low incidence in Australia and New Zealand, while 1923, 1926, and 1928, with few influenza deaths in the former, proved to be years of heavy mortality in the latter. Subsequent to 1928, however, there is a general similarity between the curves, peak years and years of low incidence being the same for the three countries. The evidence, Dr. Watt considers, is altogether inconclusive ; all that can be said is that influenza does not necessarily or even usually invade New Zealand from Great Britain. The period of time which separates the winter epidemics of the two countries further supports the belief that these seasonal outbreaks are purely local affairs, due not to any importations of fresh virus, but rather to a lighting up of an infection which is always present and continues to smoulder until it is activated by suitable environmental and biological conditions.

Infant Mortality and Expectation of Life

New Zealand's low death rate and high expectation of life have recently received added prominence from the use made of them by Drs. Dublin and Lotka, United States statisticians. The expectation of life in the male is 65 and in the female 68, and the comment is made that New Zealand has already come close to the possible top score in the present state of medical and sanitary knowledge. The mortality in the first year of life in the white population of New Zealand is only 38.35 per 1,000 for males and 25.48 for females. The corresponding figures for the white population of the United States are 60.86 and 48.21. The report and commentary are a plea for close attention in all civilized countries to infantile mortality. As the child grows older it enters a zone of low mortality with a minimum of not much more than 1 per 1,000 per annum about the age of 10, and the opportunity for improvement here is small. Mortality figures again increase in later life, but they cannot be reduced by sure methods such as are available against infectious diseases and nutritional and other diseases of infancy. Some years ago Dr. Dublin prepared a hypothetical life table at a time when the actual expectation of life was 57, and he gave 63¾ years as the expectation of life to be attained some time in the future in the United States, this estimate being based entirely on New Zealand figures. He now thinks that he was too conservative in his prognostication, and that an expectation of 70 is now attainable. It would appear, however, that the conditions of life on a continent such as America are not exactly comparable with the conditions on an island country such as New Zealand, and differ climatically, socially, and economically.

Doctors and Investments

Government Commissions are inquiring into the operations of nineteen interlocking trust companies in New Zealand, New South Wales, and Victoria. The evidence has caused what the newspapers call a sensation. One of these companies is known as the British Medical Investment Trust Limited, conveying a suggestion that it is connected with the British Medical Association—which is a compliment to the B.M.A., no doubt! A large number of medical men will probably now read with close personal interest the evidence given of the ramifications of investment companies, and the mysteries and secrets of high finance, and for a time will be highly discriminating in their choice of investments.

School Dental Service

An attempt is now being made to reach the country schools, often scattered very widely apart, by means of a new type of trailer dental clinic. The interior of the trailer car is 14 feet by 7½ feet, the walls are of steel, and the interior is smooth with rounded angles. Natural lighting is provided from a bay window, which forms one end of the car, but lighting and also heating are available from hydro-electric supplies, which serve even sparsely populated districts. The clinic is towed by a motor lorry or car.

India

Annual Meeting of the Assam Branch

The annual meeting of the Assam Branch of the British Medical Association was of exceptional interest this year, for it celebrated the union of the Northern Bengal Division with the Branch. As the retiring president, Lieut.-Colonel J. Morison, director of the Shillong Pasteur Institute, pointed out at the dinner, since its inauguration in 1908 the Branch has had a fine record of public service. It initiated the movement that resulted in the building of the Pasteur Institute, and thus gave to Assam a fine centre for medical research. Its members had also started the campaign against kala-azar which was later so effectively developed by the Government. Moreover, it had actively supported the interests of the tea-garden coolies and of the skilled and experienced native licentiate. The Governor of Assam, Sir Michael Keane, added that

the Branch had achieved many miracles, of which the most recent was the anti-cholera crusade along the banks of the Brahmapootra and the Barak, largely due to the close co-operation which existed between it and the Government and the Pasteur Institute. The meeting was held on four days at Shillong, and the morning of one day was spent at the Pasteur Instutute, when Lieut.-Colonel Morison gave a very interesting demonstration of the recent discoveries in respect of bacteriophage types, the micro-manipulator, and the preparation of antirabic vaccine. Fruitful discussions were held on cholera, diphtheria, the treatment of malaria by atebrin, the control of this disease in a group of tea-gardens, and public health and sanitation in tea-gardens. The discussion on atebrin proved so vigorous that the subject will be brought up again at the next annual meeting. A visit was also paid to the Welsh Mission Hospital, with its up-to-date *x*-ray and electrical department and new operating theatre and dark room. In his presidential address Lieut.-Colonel Morison discussed the Indian Medical Council Act, and mentioned the responsibilities which were carried by the Assam Branch, particularly in respect of the advice it was often called upon to give to the Government. He commented on the difficulties attending lunacy certification in Assam, and then gave a general account of the activities of the Pasteur Institute. Daring experiments had been conducted with phage in the prevention of cholera, and the president gave details of the successes that had been achieved and the conclusions that were being reached. Since there was a possibility that phage might prove to be a factor also in influenza epidemics, and in other great epidemic diseases with well-defined cycles, fascinating and important issues still remained for further investigation. The *Proceedings* of this annual meeting have now been published by the Indian Tea Association ; they include reprints of the chief speeches delivered, which are in many cases of considerable clinical and scientific interest, particularly to those whose work lies in tropical countries.

Calcutta School of Tropical Medicine

The annual report for 1933 of the Calcutta School of Tropical Medicine and the Carmichael Hospital for Tropical Diseases records some important developments, designed to remedy to some extent the crippling due to inadequate accommodation for a steadily growing work. Thus the All-India Institute of Hygiene has made room for a continuation, on a smaller scale, of a kala-azar inquiry, its predecessor having been closed in March, 1933. Dr. Muir's research laboratory is also housed there now. The Pasteur Institute of Bengal has been transferred to commodious premises in another part of Calcutta, whence it now issues the antirabic virus to centres throughout Bengal. This decentralization is not only an economical move, but it has also rendered antirabic treatment much more widespread through the Province. The museum is being enlarged, and its educational value has been thereby enhanced. The Carmichael Hospital, with its ninety-two beds in the open wards and its fourteen in private cabins, represents a research hospital attached to the school. Such cases are selected as will be suitable for post-graduate teaching in tropical medicine or for research work. Even so, there is always a long waiting list of candidates for admission, it being realized that the whole resources of the school can be brought into action for each case. The reports of the various professors and departmental heads make interesting reading. For example, complement-fixation tests in filariasis have continued, and it has now been established that cases of acute or subacute lymphangitis tend to exhibit two different types of immunity response. In one type the finding is a positive complement-fixation reaction associated with an eosinophilia, the total white count and polymorphonuclear percentage being within normal limits. In the other type the finding is a negative complement-fixation reaction with a polymorphonuclear leucocytosis. It is concluded, accordingly, that there are two distinct types of attack in such cases, which have been designated the toxic and septic types respectively. Repeated testings of cases of acute or subacute lymphangitis, with a positive complement-fixation reaction, has demonstrated that as the attack passes off the reaction becomes negative. A new investigation of anaemia and respiratory diseases—chiefly pneumonia—has been started in the Assam tea-gardens. With regard to cholera, results have been obtained which establish the aetiological relation to this infection of the so-called cholera-like non-agglutinating vibrios. A comprehensive work on the antigenic structure of the different phases of the vibrio is nearing completion, and is expected to throw much light on the puzzles connected with the serological reactions of vibrios. The leprolin test, which originated in Japan, has proved of value in determining the type of leprosy, in making a prognosis, and in estimating the value of treatment.

Ireland

Royal College of Physicians

At the annual meeting of the Royal College of Physicians of Ireland Dr. J. A. Matson was elected President and Dr. W. Boxwell Vice-President. A special service for doctors and medical students was held in St. Patrick's Cathedral on October 18th, and in the evening the annual St. Luke's Day dinner was given in the College Hall, when there was a large attendance of Fellows and guests.

Home Hygiene

At the inaugural meeting of the clinical session Dr. Robert E. Steen, physician to the Meath Hospital, Dublin, read a paper on home hygiene, in which he said that the system of school hours in this country was very detrimental to the health of children. A child was continuously worked after entering the school at 9.30 a.m., except for a short break at midday for a piece of bread or for bread and milk. The result was that by the time the child reached home, at 3.30 p.m. or later, its appetite in many cases was gone, and the hot meal which it should have received at midday, and which should be its mainstay, became little more than a farce. The tendency was for the child to eat more heavily later in the evening, and tea, which should be the lightest of the three meals, became the chief meal of the day. Discussing the milk supply, Dr. Steen said that a quiet effort had been made in the last ten years to make milk reasonably safe for consumption. It was only within the present year that a Bill had been introduced to prevent vendors from selling milk under misleading titles. Until the Bill became law the old conditions would exist, and a man might sell milk teeming with microbes under the title of Grade A without any penalty. There were a large number of milk producers who sold what might be regarded as a reasonably safe milk. They had joined together to form an association known as the Tubercle-Free Milk Producers' Association, which meant that every cow in the herds was periodically subjected to vigorous tests. Such milk cost no more than ordinary milk, and those dairies should be encouraged by receiving public support. Professor J. W. Bigger congratulated Dr. Steen on his address, and said that while the preventive aspect of medicine was being more and

more emphasized Government authorities had not utilized the knowledge that had been acquired by the profession. If he himself were so unfortunate as to be appointed dictator of this country for one year he could reduce the number of deaths from diphtheria by 90 per cent., and in the same proportion he could also reduce the deaths from bovine tuberculosis. He could guarantee to eradicate all forms of tuberculosis within twenty years by utilizing the knowledge which the medical profession now had. Much was being done by medical officers of health, and in that connexion it was gratifying to realize that almost all counties in the Free State had full-time county medical officers of health. A great deal of preventive work could best be done in the homes. The old-time family doctor had many virtues. He would like to sketch out a scheme for reviving the position of family doctor—a scheme applicable particularly to the middle classes. The middle classes were medically neglected, as compared with the rich, who could look after themselves, and with the poor, who were well cared for. Doctors were anxious to help the public and to give the public the benefit of their knowledge.

Treatment of the Mentally Defective Child

In the course of his monthly report to the Grangegorman and Portrane Mental Hospitals Committee, Dublin, the resident medical officer, Dr. J. O'C. Donellan, refers to the difficulty of giving proper care to mentally defective children. In the two institutions there are eleven such children. Their care is a problem, since their number is not sufficient to warrant the setting aside of special wards. Dr. Donellan suggests that a central home for these defectives should be established, where patients from all parts of the country could be dealt with. Some of these cases could be much improved under judicious management and training, and those of the worst type would receive appropriate attention, which it was impossible to provide in a general mental hospital.

England and Wales

A Twenty-First Anniversary

King's College Hospital has now occupied its present site in the South of London for twenty-one years, and a service in commemoration of this anniversary was held on October 18th at the Church of St. Clement Danes. The Archbishop of Canterbury gave an address in which he said that the removal of the hospital twenty-one years ago had been a wise step. It was placed in healthy surroundings, and its greater usefulness was shown in the increase in the number of in-patients treated. Since the foundation of the hospital ninety-four years ago there had been an amazing advance in medical and surgical knowledge. No single step in the effort to save life had been comparable to that of the discoveries of Joseph Lister, who for fifteen years held the chair of clinical surgery in King's College. His Grace, referring to the voluntary hospitals, said that while he was not forgetful of the work of the hospitals maintained by public authorities, the fact that a hospital stood for voluntary zeal gave it a tone and atmosphere of its own. The number of in-patients of King's College Hospital last year was 6,779, compared with 2,991 in 1912, the last year on the old site. The out-patients increased in the same period from 37,000 to 306,248. The annual expenditure has risen from £22,500 to £104,000, but the mortgage of £80,000 which had to be raised to carry on the work during the war has now been reduced to £57,000. The next step in the completion of the hospital is the addition of a final side to the administrative block, forming the nurses' home, at a cost of £25,000. The present hospital was actually occupied by patients on October 13th, 1913, when the casualty department was opened and two wards were made available out of the 384 beds forming the present complement. The removal from Portugal Street to Denmark Hill was made possible by a gift of a site of twelve acres by the late Lord Hambleden. The medical school, which had hitherto been incomplete, was finished and opened by Prince George in 1933.

Congress on Life Assurance Medicine, 1935

An international congress on life assurance medicine will be held in London next summer under the patronage of H.R.H. the Duke of York and the presidency of Professor W. Langdon Brown. It is the first congress of its kind since 1903 and the first to be held in this country. On the evening of Tuesday, July 23rd, a reception will be given to the delegates, and after the formal opening ceremonies on July 24th discussions will be held on methods of estimating risks and on the prognosis of hypertension. On July 25th there will be discussions on the acceptance of glycosurics, and on gastro-intestinal ulceration and life assurance, with a conference banquet in the evening. The morning of July 26th will be given up to a discussion on the role of health service in life assurance, and the afternoon to short papers. On Saturday, July 27th, there will be excursions. Details of the names received for discussions and of the short papers, and also of the various social functions in connexion with the congress, will be circulated later. The subscription, including banquet, etc., and a copy of the transactions, is £2; for lady associate members (limited to one for each member of the congress) £1, to include banquet and social functions only. The hon. secretary is Dr. Otto May, 142, Holborn Bars, E.C.1; the chairman of the executive committee is Dr. Theodore Thompson; and the hon. treasurer, Dr. Stanley Bousfield. For practitioners resident in Great Britain and Ireland, membership is restricted to members of the Assurance Medical Society and to such other practitioners as are interested in life assurance and whose application for membership is approved by the congress committee.

Chelsea Clinical Society Annual Dinner

On October 16th the annual dinner of the Chelsea Clinical Society took place at the Rembrandt Hotel, S.W., the president, Dr. Charles Sundell, being in the chair. There was a good attendance of members and guests. The toast of "The Society," coupled with the name of its president, was proposed by Colonel T. McDonald Banks, Director-General of the Post Office. He said that, on the principle of the cobbler sticking to his last, he could perhaps best occupy the time by telling those present something about his own work. The Post Office employed a quarter of a million people, and with the exception of the L.M.S. was the largest single organization in the world. Their chief medical officer, Dr. H. H. Bashford, was doing very fine work in watching over the health of all its servants. Everyone who applied for employment was thoroughly examined medically, and elaborate records were kept of the state of health of every member of the organization. It was, incidentally, worth noting that messenger boys applying for work were now, on the average, 16 lb. heavier and one and a half inches taller than they were before the war. The sick records would, it was hoped, prove of considerable statistical value, as there was enormous material available for mass investigation. As an example of this, the effect of an

anticatarrhal vaccine was tried on 800 Post Office volunteers all over the country, and a similar investigation was going to be made this year. High blood pressure might well form a suitable subject for statistical research. An investigation of the occupations and hobbies of the modern generation was particularly interesting. Out of 250 young employees only eight had no outdoor amusement, seventy-two were cyclists, forty-one were swimmers, fifty-nine campers, and sixty-three played cricket or football. This seemed to show, in contrast with the foreign "youth movement," that as a race the British did not have to be dragooned into athletic activities, but were well able to look after themselves. The speaker concluded with a tribute to the president. In reply, Dr. Sundell related a personal anecdote concerning Colonel Banks and the Post Office, and made passing references to the Minister of Transport, the Treasurer's attack of influenza, and the campanological duties of the chairman—a silver hand-bell serves as curfew in cases of long-windedness. Future subjects for discussion in the society included "slimming" and, as a suitable follower, "embalming." Proposing the toast of "The Guests," Dr. Henry MacCormac mentioned Dr. Robert Hutchison, Dr. Hope Gosse, Lord Horder, and Lieut.-General Hartigan, Director General of the Army Medical Services. The last two briefly replied.

Winsley Sanatorium

Important extensions to Winsley Sanatorium were opened by Lady Lansdowne on October 10th. This sanatorium, which serves the three local authorities of Bristol, Wiltshire, and Bath, was opened in 1903 as the result of intensive propaganda by the Gloucester, Somerset, and Wilts branch of the National Association for the Prevention of Consumption. The splendid pioneer work of this association stands in some danger of being forgotten, but the presence of Dr. Lionel Weatherly at the opening of the extensions recalled the time when the foundation stone was laid more than thirty years ago and he was chairman of the Executive Committee. Dr. P. Watson-Williams, who was the honorary treasurer of this branch of the association, was also at the ceremony. The admirable beginning made by the association has expanded, until the increasing needs of those patients for whom local authorities are responsible has brought the cities of Bristol and Bath and the county of Wiltshire into the position of maintaining nearly the whole of the available beds. The Marquess of Lansdowne presided at the meeting which preceded the opening ceremony. Alderman J. E. Jones (of Bristol) gave a short account of the progress of the institution, explaining the urgent need for the extensions, which included a new administrative block, a new nurses' home, and a recreation room for female patients. Additional space has thereby been gained in the medical unit, and used for the provision of out-patient rooms, a throat department, and dental treatment rooms. Dr. Lionel Weatherly spoke of the finding and purchase of the site and the early days of the sanatorium, which was founded on philanthropy, rate aid, and self-help. The institution is now taking nothing from the philanthropic purse, and is saving money every year. Lady Lansdowne made a charming and brief speech, dwelling especially on the work of the nurses and the need for housing them well. She was presented with a golden key, with which she proceeded to open the new buildings. It is interesting to note that the new buildings have been entirely paid for out of capital funds, and that although the estimated expenditure was £17,361 the complete cost was only £17,244. The plans were drawn by Messrs. W. S. Skinner and Sons of Bristol, whose hospital designs here and elsewhere in the neighbourhood are unsurpassed for simplicity and workableness.

Reports of Societies

UNSETTLED PROBLEMS OF NEUROSYPHILIS

Instead of delivering a presidential address in the Section of Neurology of the Royal Society of Medicine on October 18th, Dr. S. A. Kinnier Wilson introduced a discussion on some unsettled questions of neurosyphilis.

Dr. Wilson recalled that he was one of a number of medical men visiting Paris at the invitation of the Faculty of Medicine in the spring of 1905, when the great subject of discussion was the new discovery of the organism of syphilis. He wondered whether very much advance had taken place since then. Things were "hanging fire" to some extent to-day because not nearly enough was known about the organism. It was not even known whether it was a low form of plant life or of animal life, whether it could be cultured or not, whether or not it was a filterable virus. It had been pointed out years ago by McDonagh that the organism had never, or very rarely, been seen to divide. Cultures seemed to die for no ascertainable reason, as though there were some undiscovered intermediate phase. Nothing was known about the laws, if there were any, whereby syphilis was inherited. It was, perhaps, wrong to talk about inherited syphilis; there was congenital syphilis, but not cellular inheritance. Had these years of advancing knowledge made any difference to the incidence of congenital syphilis, or to its sequel, in 3 or 5 per cent. of cases, neurosyphilis? There were other problems awaiting solution. He had never been able to discover why syphilitic Parkinsonism was so rebellious to treatment; he had never seen a case which improved under treatment, yet syphilis of other parts of the nervous system did improve very greatly indeed. He had never seen a case of syphilitic amyotrophy in a child. Another peculiarity was the non-occurrence of central scotoma in syphilitic optic atrophy. It was difficult to understand the relation of symptoms to lesions in many cases of neurosyphilis; this was notoriously true of general paralysis of the insane. Finally, with regard to treatment, he exhibited the mortality tables for two main varieties of neurosyphilis over the last twenty years, and showed that the mortality from general paralysis had been halved while that from tabes had remained undiminished.

Mr. J. E. R. McDonagh said that the inference he had drawn from the clinical and research work he had done on this subject was that all matters relating to syphilis must remain unsettled pending a resifting of the knowledge acquired since 1905. Serological tests were crude and non-specific, and could not be used as indicators either of the presence or absence of the infected phase, and the treatment, equally non-specific, did no more than correct the physical changes. The acceptance of the protozoa as having a complicated life-cycle which had to be completed before signs and symptoms manifested themselves explained the long incubation period, and why the word "cure" should never be used. In quiescent cases the spore could not be detected, but its presence in the body appeared to be lifelong, because a patient who had once had syphilis never became reinfected. The whole behaviour of the micro-organism in the body was determined by the state in which the host's resistance happened to be at the onset of and throughout the infection. It was the body, not the parasite, which varied. Hence it was incorrect to speak of neurotropic and dermotropic types of infection. Syphilis, by changing the blood in the way it did, was particularly apt to precipitate manifestations of disease and aggravate other diseases which had an ageing tendency. Experience had taught him that infinitely more was to be gained by treating the patient than by treating his infection. He was convinced that if syphilis and all other invaders were removed from their pigeon-holes, collected together, and regarded as a single cause of extrinsic disease, an enormous advance would be made. In short, there was nothing in syphilis, *qua* syphilis, different from any other invader.

Dr. Buckley Sharp confined his remarks to treatment. The problem was to penetrate what had been called the "blood-brain barrier." Recourse had to be made to chemotherapy aided by the ability of the patient to defend himself against infection by his own immunity response. Chemotherapy was not just a simple process involving direct action of the drug upon the organism, like the action of an antiseptic; some other substance, unidentified, was formed by the interaction between the injected drug and the patient's tissues. Should intensive treatment be started at the earliest stage or should time be allowed for the development of the patient's own immunity response before active therapy was begun? In practice it was usual to commence treatment immediately after diagnosis. He believed that neurosyphilis was most likely to follow in cases inadequately treated at the beginning. What drugs could most readily penetrate the nervous system? The trivalent arseno-compounds in general use did not normally pass the "blood-brain barrier." Tryparsamide appeared to have a special affinity for the central nerve cells, and this drug was of great value in general paralysis. It had little if any effect on the somatic as compared with the neurological manifestations of syphilis. From a clinical point of view the most troublesome problem was that of tabes in its early stages. He knew of no medical treatment that would with certainty put an end to root pains and crises. He had tried malarial therapy in two cases of lightning pains, with only temporary benefit.

Dr. D. Nabarro spoke particularly of congenital syphilis as seen at the Great Ormond Street Hospital. One problem was why white children were ten times as susceptible as coloured. He had examined the cerebro-spinal fluids of 107 infants with congenital syphilis, and in no fewer than fifty-seven the fluid was abnormal. The figure indicated how frequently the central nervous system was invaded in congenital syphilis, yet very often lumbar puncture was not done. In infants, insufficient early treatment, particularly with mercury, might lead to recurrence of neurosyphilis in the second or third year. Neurosyphilis in children past the age of infancy might be latent or manifest, the former state being diagnosable only by lumbar puncture in all cases. In these cases disorders of conduct, fits of temper, moral obliquity, varying degrees of feeble-mindedness, and occasionally mental precocity, were encountered. Cases of juvenile tabes were very rare. He could recall only two during his twenty years at Great Ormond Street; one of them did very well on intravenous sodium iodide in association with arsenic, but the other on the same treatment showed no improvement. He gave details of an investigation of thirty-one families in which syphilis was probably or undoubtedly present in the third generation; in nearly every one of these cases the disease was transmitted to the third generation by an untreated congenitally syphilitic mother. It was frequently the second child who was most markedly affected.

Dr. W. Nicol described the work on malarial therapy at Horton Mental Hospital. Since 1925 just over 600 cases had been treated; at present some 200 cases were in the hospital. Nearly all the cases that would ever be discharged were ready for discharge in from seven to nine months. Omitting these recent cases, there were eighty-four women and fifty-three men now in hospital who had been under treatment for long periods: twelve of the women and seventeen of the men had shown improvement and were useful workers in the hospital, though not able to return to the outside world; others were deteriorating after some years of improvement. Malarial therapy indisputably prolonged the life of the general paralytic, and physical health improved. Why did some cases resist treatment and others not? Some might be explained by treatment beginning too late, but there were cases in which that would not hold. If a case did not respond favourably to a first course of malaria it was not likely to respond at all.

Dr. K. Paddle said that his experience was limited to cases among mental defectives. The relation of syphilis to mental deficiency was even now not settled. In mental defectives suffering from congenital syphilis was it to be inferred that the deficiency was the result of syphilis, or was it a coincidence? The family history of forty-seven unrelated cases of mental deficiency complicated by congenital syphilis revealed that in 50 per cent. there was a definite neuropathic agent, so that probably the mental defect was the result of the two factors acting together, when either might have been insufficient in itself to produce the condition.

Dr. L. C. Cook described his work at the Fountain Hospital, and divided patients of this character into two categories—those with abnormal and those with normal cerebro-spinal fluid. Of the latter he found it extremely difficult to say that their cases could be labelled neurosyphilis. The value of a cerebro-spinal fluid picture in congenital syphilis, whether as a guide to diagnosis, prognosis, or treatment, was to be doubted. A large percentage of the congenital cases had changes in the cerebro-spinal fluid, but he was doubtful whether any prognostic significance could be attached to such findings. It had struck him that the syphilitic patients tended to exhibit a greater emotional facility than other aments.

Mr. Lindsay Rea discussed some ophthalmological findings, and said that he had never seen a central scotoma in any syphilitic case. Dr. Kinnier Wilson had stated that probably the spirochaete was aided and abetted by some other organism. The speaker had come to the conclusion that a gonorrhoeal iritis occurred only in people with some form of dental sepsis, and that the two conditions were definitely related. He was sure that many of these diseases were not due to one specific organism.

Mr. Sydney Scott spoke from the point of view of the otologist, and said that it was extremely difficult to diagnose clinically, from any special examination, whether a patient had a syphilitic lesion of the vestibular or cochlear nerve, though he had seen syphilis of both these nerves. He showed a number of lantern slides to illustrate the difficulties of otological investigation in this field. Dr. Hugh Garland said that although he believed in treatment with bismuth and N.A.B., there were certainly cases which did develop neurological signs despite such treatment. Dr. Fergus Ferguson asked whether in a case of early tabes dorsalis one was justified in advocating malarial treatment in view of its risks. Was the treatment to be justified in the case of a young person? Dr. Leonard Findlay had had the opportunity of treating some seven cases with malaria and found no disadvantage; one case, apparently, was cured, and in another the disease was arrested. On the other hand, he had not seen the least benefit from treating neurosyphilis with mercury or salvarsan. Mr. Leslie Paton said that he knew of only one reported case of central scotoma in neurosyphilis. He thought that he himself had discovered one case, in a tabetic who had been coming to Queen Square for thirty years; it was certainly a central scotoma, but further investigation proved that it was due to tobacco, not to tabes. He gave an anatomical explanation for the rarity of central scotoma in these conditions. He also stated that he had seen one undoubted case of reinfection with syphilis.

Dr. Kinnier Wilson, in closing the meeting, remarked that most of the questions he had posed at the beginning remained still unanswered.

PROBLEMS IN THE STUDY OF SCIATICA

At the meeting of the Section of Physical Medicine of the Royal Society of Medicine on October 19th Dr. J. Barnes Burt, the president, instead of reading a presidential address, opened a discussion on some problems in the study of sciatica.

Dr. Burt first posed the problem of classification. A practical method was to divide sciatica into three main clinical groups—namely, (1) root sciatica, (2) trunk sciatica, (3) referred sciatica. This classification was also an anatomical one if the word "branch" were substituted for "referred," and formed a definite basis for diagnosis and treatment. It was often said that referred sciatica

was not true sciatica; but it was certainly true "leg ache," and the pain was distributed along the branches of the sciatic nerve. Many used the terms "primary" and "secondary"; the term "true" was also used; but Dr. Burt urged that these terms should be abandoned. Putti, the Italian orthopaedic surgeon, had written the classical article on root sciatica, and had proved that it was a clinical entity, though his definition of "root" was slightly different from that usually adopted in this country. Dr. Burt had analysed his figures at Devonshire Hospital, Buxton, and had found that out of 140 cases 35.5 per cent. were of root sciatica, 17 per cent. of trunk sciatica, and 45.5 per cent. of referred sciatica. It followed that the average medical student learned his sciatica on the rarest type, while referred sciatica was lost in the mass of differential diagnosis. Dr. Burt claimed for his own classification that the groups were quite distinct: in most cases the diseases were entirely different, with different pathology, onset, and treatment.

The second problem he put to the meeting concerned differential diagnosis. Generally speaking, the symptoms of referred sciatica were less severe than those of sciatica belonging to the other groups. The pain was seldom constant, and often did not reach below the ankle. Sensory signs were absent, and although there might be some muscle wasting this was of the general type, due to disuse. Unfortunately, similar mild symptoms might occur in a mild case of root sciatica. It was a mistake to think that root sciatica produced more serious symptoms than trunk sciatica or referred sciatica. Putti regarded rigidity of the lumbar spine as a constant sign in root sciatica: there were two other signs which, although not constant, assisted the diagnosis—namely, tenderness along the lateral aspect of the lumbar vertebrae and distribution of pain along the external cutaneous nerve of the leg. This was not a constant sign, but when it did appear it put one on the track at once.

Dr. Burt's third problem related to the varieties of referred sciatica. Every textbook was full of sciatica caused by osteo-arthritis of the hip. To his mind this was a cause very much exaggerated. The only two cases out of the 140 which he had analysed having severe sciatica associated with osteo-arthritis of the hip were also cases of osteo-arthritic spine. Sciatica due to sacro-iliac disease was simply bristling wth problems. A number of people had suggested that inflammation spread by direct contact from the sacro-iliac joint into the roots of the sacral plexus. This had been very carefully investigated. If there was swelling of the intervertebral joint it would press the nerve right against the opposite side of the bone, and in many cases the inflammation spread into the tissues in that way: thereby a root sciatica might become a trunk sciatica, the inflammation spreading down the roots into the trunk. It was a problem to him why sciatic pains were not found in spondylitis deformans. In practically every such case there was ankylosis of the sacro-iliac joint, and one would have thought that inflammation severe enough to produce ankylosis would be sufficient to give rise to sciatica. The most interesting of the referred sciaticas was that due to fibrositis of the gluteus medius and minimus, partly because it was not mentioned in the textbooks, and partly because it was easily cured if correctly treated. If one slipped on a rug or a parquet floor pain was felt just over the gluteus medius muscle, and one was likely to have a certain amount of sciatica. In driving a car with a seat that did not suit the leg a certain amount of sciatica was apt to develop by reason of strain on the gluteus medius. The greater part of these muscles was lying on the bone, and was covered by one of the firmest aponeuroses in the body. A branch of the superior gluteal nerve travelled along the surface of the ilium to supply the muscles. Any inflammatory swelling of the muscle in this confined space set up a pressure on the nerve, or possibly the nerve was involved in the inflammation, and the pain was referred to areas of the leg supplied by the fourth and fifth lumbar, chiefly the peroneal branch of the sciatic nerve. All these cases of sciatica got well quickly. Another problem concerned Lasègue's sign, the value of which was belittled by both Putti and Buckley. The sign was not of pathognomonic value: it occurred only in two conditions—namely, trunk sciatica and the sacro-iliac condition. Two modifications of the sign might prove exceedingly useful. One was Dr. Mennell's modification, in which, as the leg was raised with the knee straight, the foot was extended or flexed; with the foot extended it could be raised a little higher in sacro-iliac trouble than in trunk sciatica. The other was what he called the "floor sign," in which the patient sat flat on the floor with his back against a wall. The back of the knee normally touched the floor unless he had arthritis (or acute trunk sciatica, in which case he could not sit down in that manner at all): the positive sign only appeared if there were adhesions. Out of his 140 cases only nine had a positive "floor sign."

Finally, Dr. Burt touched on the subject of treatment. Massage was of value in two classes of conditions. In the case of referred sciatica due to fibrositis of the gluteus medius early massage would effect a cure. If, however, the condition was not treated properly, and the unfortunate patient "worked it off," the inflammation spread to the fascia of the gluteus maximus and into the trunk sciatic nerve. The other condition that benefited by massage was sacro-iliac trouble. But massage must be given by careful prescription—gluteal muscles only, and bed for an hour afterwards.

Discussion

Dr. Wilfrid Edgecombe said that Dr. Burt's percentage of 45 as coming within the "referred" group related to hospital cases. In private practice the proportion of these cases was much greater—perhaps 65 or 70 per cent. The cases were easily curable: in the acute stage nothing but rest, heat, and large doses of aspirin; later, intelligent massage. More troublesome cases were those of acute toxic neuritis of the sciatic nerve: the pain was severe and constant, irrespective of movement, and the wasting of muscles was marked and dramatic. Dr. C. W. Buckley asked whether it was true that pressure on a nerve fibre produced pain. Pressure produced first "pins and needles," then numbness of the parts affected, and, if a motor nerve was involved, muscular wasting; but it did not create pain. If there was pain it was due to pressure on that specialized organ, the nerve-end. Dr. A. R. Neligan drew attention to a form of sciatica which seemed to be connected with varicose veins in the leg, and to clear up when the veins were treated. As to massage in sciatica, one form which he had found extremely useful was the underwater douche. Dr. W. J. Turrell related particulars of some cases of the radicular type, and Dr. Alastair MacGregor referred to the value of mild faradic current in locating tender points in trunk sciatica.

AWARENESS IN PSYCHOLOGICAL MEDICINE

An extraordinary general meeting of the Medical Society of Individual Psychology was held at 11, Chandos Street, W.1, on October 11th, Dr. J. C. Young being in the chair. The objects of the society were defined more exactly in the following resolution, which was adopted:

> The objects of the society shall be: (1) to advocate and extend the general psychological approach to medicine, and (2) to promote the study and discussion of individual psychology. Membership shall neither require nor imply formal adherence to any particular school of psychology.

The chairman inaugurated the session by an address on "Awareness in Psychological Medicine," in which he said that the consciousness of the higher animals differed from the consciousness of the human animal in that the latter, in addition to the vital or organic memory common to both, disposed of a voluntary capacity for recollection not found in the other animals, notwithstanding, for example, the elephant's long memory for kindnesses and injuries. This recollection was a function of vital memory rather than voluntary recollection. Nevertheless, in so far as human voluntary recollection consisted in the last resort in the capacity to delay and to co-ordinate reflexes, depending somatically on a highly differentiated nervous organization of highly differentiated parts, the difference

between human and animal consciousness might be said to be only one of degree. There was no essential difference in kind. Similarly there were differences, as between man and man, in degree of human consciousness, almost amounting to a difference in kind. The higher degrees of consciousness implied higher degrees of integration with less liability to the disintegration or dissociation which was the essential feature in neurosis and psychosis. Dr. Young thought it useful to designate these higher degrees as "awareness." No sharp dividing line could, however, be drawn between awareness and consciousness. But awareness connoted a degree of self-awareness of motive and life goal which was deficient in the neurotic and practically extinguished in the psychotic. Awareness did not happen mechanically, nor could it be achieved by mechanical reading of textbooks. It required work on oneself and a certain disciplinary sincerity. Only in virtue of awareness born of experience recognized in himself of the psychological realities and mechanisms which had overwhelmed his patients could the physician in psychological medicine hope to cure or alleviate their sufferings of unawareness of dissociation and disintegration.

ADHESIONS IN ARTIFICIAL PNEUMOTHORAX

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, held on October 5th, Dr. Gustav Maurer, medical superintendent of the Sanatorium Guardaval, Davos, read a paper on a modification of the Jacobaeus operation for pleural adhesions in cases of artificial pneumothorax.

Dr. Maurer described the technique of his method for the examination and delimitation of adhesions with a thoracoscope, their transillumination with an instrument of his own design, and their enucleation from the chest wall. The advantages of this method were absence of shock and a great reduction in the incidence of post-operative complications, such as empyema, haemorrhage, and pleural effusion. More than eight hundred cases had been operated upon, with a mortality of less than 1/2 per cent. The paper was illustrated by lantern slides and *x*-ray plates.

The President of the Academy (Mr. R. A. Stoney) said that there was no doubt that the surgical treatment of tuberculosis was still in an adolescent stage in Ireland, and that no general attempt had been made to undertake surgical treatment as an aid to the management of cases of tuberculosis of the lungs. In connexion with the surgical treatment of tuberculosis the team spirit—the close co-operation of physician, surgeon, and radiologist—was most important. Every case should be carefully considered on its own merits, and no rule-of-thumb methods should be adopted. He believed that there was a great field open before the surgical side of the medical profession in regard to the treatment of tuberculous cases. The work was extremely technical, and the results obtained by Dr. Maurer, the *x*-ray photographs, and the description of the cases seemed to him almost miraculous. There was no doubt that this was, and always would be, work which required extreme knowledge, experience, and delicacy of technique. He would like to recommend to the younger generation of surgeons this large field of surgery in which they could exercise and develop their talents.

Dr. Harold Quinlan said that in the out-patient department of the hospital to which he was attached he saw from 120 to 150 cases of pulmonary tuberculosis a year. Of these, about 66 per cent. were unilateral, and on that account a great number of them were suitable for pneumothorax. He had seen some cases in which adhesions had been cut, but thought that it was very difficult to find cases which were really suitable for this procedure. In some cases excellent results were obtained by thoracoplasty. He personally did not like interfering with adhesions unless they were very thin and fibrous in character.

Dr. W. R. F. Collis felt that this was a line of treatment, really more medical than surgical, which might be more widely adopted.

Dr. J. B. Magennis confessed himself amazed to hear of the very successful results obtained by Dr. Maurer by the operation he described in cases which the majority of medical men would have looked upon as hopeless. Referring to the value of internal transillumination of adhesions, he said that, until one had interfered with an adhesion without knowing it, it was impossible to realize the importance of transillumination. He was interested to note that in Dr. Maurer's cases there had been so little reaction on the part of the pleura. He felt that the failure to make advances in the treatment of tuberculosis as rapidly in Ireland as in other countries was largely because there was no central hospital for tuberculosis. Many hospitals tried to keep a small ward only for tuberculous patients, but if there was one hospital only for tuberculous cases treatment would be much easier.

Dr. Leonard Abrahamson stressed the need for more adequate accommodation for tuberculous patients, and for better equipment and facilities in the existing institutions. He thought that small general hospitals were unsuited to the treatment of such cases. In regard to operative procedures, whilst definite advance had been made of late years, a little conservatism was indicated in contemplating such measures in a given case. Dr. A. R. Parsons said that until he had heard Dr. Maurer's paper he had had very little faith in the procedure of division of adhesions, as he thought it was an extremely difficult operation, and one which was attended with great risk to the patient. Since hearing Dr. Maurer he had changed his opinion. Dr. Maurer had operated on 815 patients, and of these only three had died as a result of the operation—a mortality of less than 1/2 per cent. He considered this an amazing result for surgery, and he would like to congratulate Dr. Maurer on the extraordinary results he had obtained.

The President of the Section (Dr. V. M. Synge), in complimenting Dr. Maurer on his work, said that in some cases the cures were little short of miraculous. He was interested to notice the very small number of cases in which an exudate had occurred, and thought that this was very significant.

CHOLESTEROL AND DISEASE

At a meeting of the Pathological Society of Manchester, held on October 10th, Professor S. L. Baker delivered his presidential address on "Cholesterol and Disease."

Cholesterol deposits, he said, might be either generalized, when they were of metabolic origin, or local, following local destruction of tissue. Arterial disease was the most important condition in which cholesterol deposits were found, and had been much studied experimentally. Several distinct processes were concerned in the production of the common forms of arterial hardening comprised by the term "arteriosclerosis." Of these processes the most important was atherosclerosis, characterized by the development of fatty (lipoid) streaks and patches and atheromatous deposits, particularly in the aorta and its main branches. Rabbits whose diet contained powdered cholesterol showed such lesions. Their development was due to the greatly raised blood cholesterol. The lesions were closely similar, both topographically and histologically, to those seen in human atherosclerosis. The type of lesion depended on the time the rabbits were allowed to survive. Fatty streaks and patches were early lesions, while raised patches with intimal fibrosis occurred later. Spontaneous atherosclerosis was very rare in the rabbit, but in man it was present in some degree in almost all subjects. The fatty (lipoid) streaks seen in children had been regarded as toxic effects, but it had been found that their incidence was correlated with age, and not with toxic conditions. It was probable that the slighter lipoid deposits might disappear, but deposits tended to increase with age.

In diabetes and the nephrotic type of renal disease, conditions in which hypercholesterolaemia was present, there was an increased tendency to atherosclerosis. There was no evidence that hypercholesterolaemia led to hypertension, but increased strain on the arterial wall predisposed

to lipoid deposits. Extensive atherosclerosis might be found in subjects not showing hypercholesterolaemia, but work on rabbits had shown that atheromatous deposits following a temporary rise in blood cholesterol remained in the arterial walls for long periods. The experimental evidence incriminating cholesterol in the production of atherosclerosis was abundant, but much further systematic work on the fluctuations of blood cholesterol in the human subject was needed to throw more light on the problem.

The address was copiously illustrated by Professor Baker's own preparations.

CORRESPONDENCE

Trauma and Pulmonary Disease

SIR,—The annotation on chest injuries and pulmonary tuberculosis in the *Journal* of October 13th (p. 689) emphasized once more the necessity of thorough inquiries into the immediate and remote results of chest injuries, and into the mechanics of the production of such extreme lung damage as recorded by Dr. E. G. Fenton in the same issue (p. 700), and lesions of lesser degree.

The inquiries might begin with the pooling of cases of trauma in connexion with pneumonia, empyema, haemoptysis, pneumothorax, and haemothorax, and cases of pulmonary tuberculosis directly caused or aggravated by injury. Physicians and pathologists to large hospitals and tuberculosis sanatoria, and many general practitioners, must have records of such cases. The criteria to be satisfied as to the association between trauma and subsequent disease might be considered by such a body as the Science Committee of the British Medical Association. A discussion on the mechanics by a body of physicists detailing their experiments would be not only a mental entertainment but of real assistance in visualizing the various degrees of lung disruption.

The results would be of considerable academic interest and of very great practical importance. Problems of diagnosis, treatment, and prognosis in the various conditions would be ventilated, and groups of definite cases placed on record which would be invaluable in workmen's compensation and medico-legal practice as well as in general medicine.

If the Science Committee could be prevailed upon to undertake the work I feel sure the members would have the cordial co-operation of all branches of the profession.—I am, etc.,

Wigan, Oct. 19th. W. E. COOKE.

B.C.G. Vaccine

SIR,—In his recently published book *The B.C.G. Vaccine* Dr. K. Neville Irvine recommends (p. 62) the administration of 0.1 mg. of B.C.G. vaccine intradermally, and adds that the vaccine may be obtained free from the Institut Pasteur, Paris, by asking for "parenteral B.C.G."

The Pasteur Institute supplies three varieties of ampoules at present: (*a*) BCG, for oral vaccination soon after birth, containing 1 cg. of bacilli in 2 c.cm.; (*b*) BCG–NR, for oral vaccination in children older than 2 years and in adults, containing 5 cg. in 10 c.cm.; and (*c*) BCG–SC, for subcutaneous injection (the Pasteur Institute does not recommend the intradermal method), containing 1/50 mg. in 2 c.cm. To obtain a dose of 0.1 mg. one would therefore have to use 0.02 c.cm. of ampoule (*a*) or (*b*), or 10 c.cm. of ampoules (*c*). Clearly both of these alternatives would be impracticable.

Dr. Irvine must therefore have in mind B.C.G. emulsions prepared elsewhere. With those supplied by the Institut Pasteur, Paris, either a different dose or a different dose and another route than those he indicates would have to be adopted. Incidentally, Dr. Irvine does not mention in his recommendation the fact that the vaccine must be used not later than ten days after its preparation—the earlier the better—a point well worth remembering in obtaining the vaccine from Paris.—I am, etc.,

Vejlefjord Sanatorium, Denmark, Oct. 13th. G. GREGORY KAYNE.

*** A review of Dr. Neville Irvine's book appears this week at page 773.—ED., *B.M.J.*

Pre-natal Cardiac Murmurs

SIR,—The letter from Dr. A. W. Johns (October 20th, p. 743), concerning a case of congenital heart disease diagnosed before birth, reminds me of a question that has long simmered in the back of my mind. I have had in the past certainly two cases—and I rather think three, but am not quite sure—in which I have found a cardiac murmur in the auscultated heart-beat of a foetus *in utero*; and in each case I confirmed the observation by repeated examinations. In none of the cases was there found any abnormality about the cardiac sounds of the newborn infants. The point I have long pondered is this. If the foramen ovale is patent in the unborn child, and the circulation passes through it, and if patency of the foramen ovale after birth causes a cardiac murmur, why does not every foetal heart-beat exhibit, on pre-natal auscultation, a murmur likewise?—I am, etc.,

Woolton Hill, nr. Newbury, Oct. 20th. HENRY ROBINSON.

Motor Backache and Neuralgia

SIR,—Some of your readers may perhaps be personally interested in a rather common form of postural strain, which may arise as the result of motor-driving from an inefficient seat over a prolonged period. In its milder grades this seems to be a widely prevalent source of discomfort, but the severer and more important forms are likely to be indifferently confused with such conditions as lumbago, rheumatism, and sciatica from other causes, and their origin lost sight of. The distinction is an important one from the aspects of prevention and possibly of treatment.

I must ask to be excused for quoting in detail my personal experience as a patient, but such description seems to afford explanation of the cause and of the symptoms which arise from this particular strain.

Rather more than six months ago I developed an unpleasant pain in the left buttock and across the lower part of the back, and early recognized that this was induced by motoring. It was accentuated by any attempt to flex the spine in the lower dorsi-lumbar region. Lateral, rotatory, and extension movements were quite free and painless, but flexion speedily became greatly affected. It was no longer possible to get near one's toes, and as time went on putting on shoes and socks became a painful difficulty. There was much other difficulty of a similar kind, although it was at this time possible to lead an active life in some ways hardly to have been expected. For example, it was possible to play tennis with comparative comfort, but then necessary to flex the right knee and get down with a stiff left leg when attempting to pick up a ball.

Such mild exercise and walking tended to lessen temporarily both pain and stiffness; later they might be accentuated. Standing and lying prone were both more comfortable than sitting, which on a hard chair was quite intolerable. Commonly, I took my meals standing, and wrote my letters lying on my face. At this time there were no descending leg pains.

It seemed possible that insufficient exercise, by reducing muscle tone, had contributed towards this disability, but this factor was recognized too late. A period of deliberately active holiday (in which, notably, swimming in sea water was easy

and completely free from pain) was followed by an increase of symptoms—distressing neuralgic pains in the course of the left sciatic nerve, reaching to the foot, and about the buttock to the level of the iliac crest in the region of the left anterior superior spine, and beside the sacrum and coccyx. Travelling in all forms had become most painful; particularly any vibration greatly added to pain. I have been reduced to sitting on the floor in a taxi, in order to get some relief from the support of the seat edge. Walking was reduced to a limp and, crippled to this extent, work had to be abandoned.

There was much stiffness of the lower part of the spine, and *x*-ray examination showed no obvious disease. Rectal and urinary examinations and lumbar puncture were normal.

Much earlier I had come to the conclusion that the cause of the condition was the inefficient disposition and form of the driving seat in my car. Many observations supported this conclusion—in early days the creation of a backache whenever I used it; later, the degree of relief which could be obtained from a properly placed air cushion, low down behind the right side of the sacrum. By inquiry from others—motoring friends and garage owners—I learned how commonly varying degrees of discomfort were complained of.

The driving seat of the car, looked at after the event, appears to be particularly designed to give trouble. It is of the "bucket" type, fitted with air cushions but with back and seat heavily raked so as to present the shape of the letter L tipped backwards. Such an arrangement necessarily creates an unoccupied angle, resulting in inadequate support to the dorsi-lumbar region of the driver. Such a single-bucket seat is subject to much enhanced vibrations, which no doubt increase the strain thrown on ligaments when muscles become fatigued: vertebrae then tend to sag and stretch the posterior aspects of the intervertebral joints.

Clearly it might be expected, as it was experienced, that flexion of the lower spine would give the maximum of pain. Exactly how pressure comes to bear on spinal roots and give rise to neuralgic pain is a matter for conjecture, but it is not surprising that it should so happen, and it may be due to local oedema and subsequent adhesion.—I am, etc.,

London, W., Oct. 21st. G. H. A.

Residual Infection of the Jaws

Sir,—Mr. Nodine's letter that appeared in the *British Medical Journal* of October 20th raises a number of very important points for consideration. It is undoubtedly true that the condition of residual infection of the jaw would almost be non-existent if the Novitsky technique was employed more generally, but until the dental profession is educated to the standard of Novitsky and his successors residual infection of the jaw will occur, and the clinical manifestations will be observed. Mr. Nodine has done a great service in calling attention to the possibility of preventing residual infection; he was the first person to introduce the Novitsky method into this country, and the profession owes a great debt of gratitude to him.—I am, etc.,

London, W.1, Oct. 19th. R. S. Taylor.

Ether Convulsions

Sir,—I have read with interest Dr. Stanley Sykes's letter on the subject of ether convulsions, and would like to confirm his findings.

A child, aged 6, was being anaesthetized for tonsillectomy with ether vapour from a Shipway apparatus, the head being extended by a sandbag under the shoulders. After fifteen minutes anaesthesia convulsions were seen to commence in the leg muscles, and rapidly spread all over the body, the face being affected last. The operation was stopped and the anaesthetic discontinued, but the convulsions increased. Eventually the head was raised through a right angle and the convulsions ceased immediately, and did not recur when the head was lowered a few minutes later. The operation was then completed and recovery was uneventful.

In this case the head was lower than the rest of the body, and the cerebral anaemia produced by raising it was almost certainly responsible for the cessation of the convulsions.—I am, etc.,

London, N.W.3, Oct. 22nd. C. J. M. Dawkins.

Death and the Survival of Rights of Action

Sir,—I think, with respect, that the learned author of your article under this heading, published on September 29th (p. 600), and Dr. Hugh Woods, who contributed a letter to your correspondence columns on October 6th (p. 658), much exaggerate the danger to the medical profession of the Law Reform (Miscellaneous Provisions) Act, 1934. Your leader-writer suggests that a surgeon whose patient dies on the operating table is open for six years to an action for negligence by the personal representatives (that is, the executors or administrators of the deceased's estate). This may, technically speaking, be true, but the practical risk is surely very remote. The Act specially provides that where personal representatives are suing for the benefit of a dead person's estate the damages must not be exemplary, and, when the death has been caused by the negligence, they must be calculated without reference to any loss or gain to his estate consequent on his death, except that a sum in respect of funeral expenses may be included.

In face of these limitations it is difficult to see quite what damages the personal representative can claim. The learned writer of a leading article in the *Lancet* (1934, i, 1177), so far from foreseeing damage to doctors from this source, protests that personal representatives will not even be able to claim the expenses of the hospitalization and treatment of the deceased, so that doctors and hospitals will once more go uncompensated. The widow and children can, of course, claim damages under the Fatal Accidents Act, 1846; they have been able to do so for nearly ninety years, but the harm done thereby to the medical profession has been negligible. Truly, they have only a year to make their claim, and the personal representatives have the six years allowed by the Statute of Limitations, but the personal representatives are so little likely to succeed in a stale action that few in all probability will make the attempt.

Your leader-writer's second hypothetical case, where a patient whose treatment has gone wrong subsequently dies for some other reason, has more substance, for here the negligence, if any, has not caused the death, and it seems that the personal representative may claim damages for injury to the estate due to such factors as the deceased's inability to earn and the expense of his later treatment and convalescence. But they would have to explain why the deceased had not thought it worth while to bring an action: they would be deprived of his evidence, and although they might prove the injury to the estate they would probably find such difficulty in proving it due to negligence that they would think very long and carefully before they ventured to go to court. "Londoner," in the *Evening Standard*, suggested recently in his Diary an even more fantastic case: that if a legacy of £500 had been left to an individual but on examination the estate was found to be insolvent, the legatee could then bring an action for damages against the doctor. It is sufficient to remark that this suggestion entirely neglects the provisions of the Act which I have quoted, and, in addition, at least three elementary rules of common law. The *Law Journal* (October 6th, p. 206) has dealt with it far more crushingly than I could.

The plain truth is that the Act was passed with one particular purpose in view. The Common Law contains a peculiar doctrine that the right of personal action dies with the person. The result was that when a negligent motorist injured someone and was himself killed in the accident the injured party had no redress. He could not sue the estate, and he could not even recover from the negligent one's insurance company. The Act sets right an intolerable injustice. It is a principle of law to give the same rights to both sides, and so the Act allows the personal representatives of an injured person who has died to sue in his place, but has very closely limited their right to damages—so much so that negligence actions by personal representatives are likely to be few and far between.

It is always possible to construct theories from legal doctrines and enactments, just as it is from philosophical premisses, but such inventions commonly have little if any relation to practical affairs. They are unfortunate when they tend to frighten unnecessarily a body of deserving persons who already have to face more than their share of real legal danger.—I am, etc.,

London, E.C., Oct. 23rd. D. Harcourt Kitchin.

Publicity

Sir,—As one who has received a large amount of publicity in the lay press, may I say that so far as I know I have never been one penny the richer on account of it so far as my medical practice is concerned. I fully agree with Dr. Frank G. Layton that we are all guilty in one way or another of seeking publicity, and that, so long as a man does not profess to have some special treatment which he alone is capable of administering, it is all completely harmless.

Let us clear our minds of cant on this topic. Every article in the *B.M.J.* is an advertisement, intended to be read by the profession. These articles, and the personal recommendation of satisfied patients, are the only form of publicity that is likely to increase our incomes. Yet the *B.M.J.* is read by thousands of lay men and women throughout the country. It is one of the most popular journals in the free libraries, and anyone who has ever visited these public reading-rooms must have noticed old ladies poring over your columns for hours. If the *Journal* is only intended for the profession, why allow it to be circulated in free libraries? But for the old ladies many of us, by using the free libraries, might save our subscription to the Association ; and if the old ladies are allowed to read the *B.M.J.*, what possible objection can there be to the newspapers selecting from your columns any matter that they consider to be of general interest to their readers?—I am, etc.,

London, W.8, Oct. 19th. Halliday Sutherland.

*** However much some medical men might wish us to do so, we cannot control the newspapers or the public libraries or the old ladies.—Ed., *B.M.J.*

Whither General Practice?

Sir,—I would like to thank Dr. W. Savile Henderson for his letter in the *Journal* of October 20th (p. 742) and for ventilating what, I think, is a very general abuse. I may say that I have had an almost identical experience with the one he describes in Case 1, and, like him, received the same reply when I complained to the authorities. I have also had complaints from patients about welfare workers trying to force their way into the house to give advice on a variety of medical subjects without my knowledge or consent, and have been asked, indignantly, if I had sent them. This state of affairs causes a loss of confidence between the family doctor and his patients.

I would like to suggest that the authorities should issue a strongly worded standing order to all welfare workers, that they must call on the doctor *before* they visit any of his patients, and discuss the case with him first. I have never had the courtesy of a visit from the welfare worker.—I am, etc.,

Rupert Palmer, M.R.C.S., L.R.C.P.

Lydd, Kent, Oct. 21st.

Sir,—We must all sympathize with Dr. Savile Henderson in his discovery that not only lower-class but also middle-class patients are being inveigled away from the general practitioner to the public clinic, and in his plea for a remedy.

If Dr. Henderson read the report of the discussion at the Annual Representative Meeting at Dublin last year (*Supplement*, August 5th, 1933, p. 86) he will remember that it was stated there (by a member of Council) that infant welfare was educational work, and could not be done in general practice. So if Dr. Henderson accepts this view he will sit down and rejoice that the work which a mere general practitioner was unwisely attempting is being taken into the hands of people more competent to perform it.

If, on the other hand, as appears from his letter, Dr. Henderson does not adhere to this mediaeval theory, then he may accept my suggestion (*Supplement*, July 14th, 1934, p. 33) that the general practitioner is actually the person in the best position to undertake infant welfare, and let his patients know that he is able and willing to give them all that the public clinics can offer them as regards infant welfare. If he does, then I am sure that he need not fear the competition of the local authority.—I am, etc.,

London, S.W., Oct. 22nd. F. Gray.

Correction of "Medical Register"

Sir,—I am desired by the Returning Officer to say that voting papers for the purpose of the forthcoming election of a direct representative to the General Medical Council were issued on October 23rd to all registered medical practitioners having registered addresses in England and Wales ; and that the authorities of the Council would be glad if every such practitioner who has not received a voting paper would communicate immediately with the Office of the Council (44, Hallam Street, London, W.1), whether or not he proposes to vote in the election, in order to ascertain that his address is correctly entered in the *Medical Register*.—I am, etc.,

Michael Heseltine,

October 24th. Registrar, General Medical Council.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on October 18th the following medical degree was conferred:

B.M.—G. H. Buck, J. P. Dewsbury, C. M. Vaillant, A. B. Stokes.

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor announces that Sir Percival Horton-Smith Hartley, M.D., sometime Fellow of St. John's College, has conveyed to him through the good offices of the Regius Professor of Physic his desire to make over to the University, for the further endowment of the Raymond Horton-Smith Prize, securities producing an income of £20 a year. The foundation of this prize, for the best M.D. thesis in each academic year, is recorded on page 339 of the *Historical Register*. Sir Percival is the eldest son of the original donor and a brother of Raymond John Horton-Smith, whom the

prize commemorates. His gift would restore the former value of the prize, and would increase its value beyond the former amount if payment of dividends upon the present investments of the fund should be resumed.

At a congregation held on October 19th the following medical degree was conferred:

B.Chir.—*M. A. Rugg-Gunn, *T. V. Tattersall, *A. R. R. Mears, G. T. Hindley.

*By proxy.

UNIVERSITY OF MANCHESTER

Dr. R. W. Fairbrother has been appointed lecturer in bacteriology, and Dr. J. C. Kerrin succeeds him as assistant director of the routine section of the Department of Bacteriology and Preventive Medicine. Dr. D. T. Robinson has been appointed assistant lecturer in bacteriology, and Dr. I. A. Cathie and Dr. James Davson demonstrators in pathology.

UNIVERSITY OF WALES

The following candidates have satisfied the examiners in the examination indicated:

Diploma in Public Health.—(*Part II*): K. J. Grant, T. M. A. Lewis, J. C. R. Morgan, Elizabeth S. G. Owen, Jean J. Smith.

UNIVERSITY OF GLASGOW

A congregation was held on October 20th, when the following degrees were conferred:

M.D.—*W. S. L. McLeish, *C. Nicholson, Elizabeth J. Findlay, D. P. Leiper, J. Riddell.

M.B., Ch.B.—†R. C. Elitzik, †E. M. Rappaport, †J. D. O. Kerr, *M. Lazarowitz, *S. Smith, *H. Gillies, *J. H. Hutchison, *B. Joseph, *A. B. Semple, *C. L. Elder, *D. Gersten, *Gertrude I. R. Tannahill, *R. W. Carslaw, *R. McI. Millen, *C. Slutsky, *D. Ferguson, *J. D. Fulton, *D. Livingstone, *E. L. Nicolson, R. H. Adam, G. H. Aitken, Eleanor M. Alexander, W. J. Barclay, J. Black, R. Black, W. M. Borthwick, J. F. D. Boyd, D. B. Brown, J. Brown, G. G. Browning, J. N. M. Chalmers, Janet M. S. Clark, G. B. M. Clarke, N. P. R. Clyde, M. X. Colby, G. C. Cooper, J. E. Craik, J. F. Diamond, D. O. Dickie, D. Douglas, R. J. Eadie, Sarah G. Fee, I. Felsen, A. G. Fergusson, J. D. Finlayson, R. E. Fletcher, S. L. Frank, N. A. Freebairn, L. D. Gardner, Helen M. Gibb, G. C. Gordon, J. M. Graham, J. R. Hendry, Agnes B. Herbert, J. Hodge, J. Hughes, G. Hunter, A. Hutchison, J. S. Jackson, A. Leitch, M. Levinson, W. Love, A. D. Lynch, A. F. McDonald, J. Macdonald, J. A. MacDougall, J. S. L. McGibbon, Ethelwyn M. McKendrick, A. McKenzie, Roberta M. C. MacLean, J. Macrae, W. Mallinson, K. H. Martin, W. J. Moffat, R. Murdoch, J. J. Murray, J. Parker, Marion A. Pearson, R. Pettigrew, J. D. Ramsay, J. D. Rankin, J. L. Rankin, J. A. Rankin, J. G. Roberts, J. B. McN. Runciman, Olive Scott, M. S. Segall, Ada M. Sewell, Helen S. C. Smith, N. Sragowitz, Jean W. Strang, D. F. Suttie, W. O. G. Taylor, R. A. Tennent, A. Thomson, W. Thomson, J. J. Tillie, J. A. Weir, J. B. Wilson.

* With commendation. † With honours.

R. C. Elitzik gained the Brunton Memorial Prize, awarded to the most distinguished graduate in medicine for the year 1934, and E. M. Rappaport gained the West of Scotland R.A.M.C. Memorial Prize, awarded to the candidate with the highest aggregate marks in medicine, surgery, and midwifery in the final M.B. and Ch.B. examination held during 1934.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Museum Demonstrations

The autumn course of museum demonstrations in the theatre of the College commenced on Monday, October 22nd, when Mr. C. E. Shattock showed specimens illustrating bone tumours. To-day (Friday, October 26th) Dr. John Beattie discusses the functional anatomy of the pituitary gland, and on November 2nd and 9th respectively he will deal with dysfunction of the anterior lobe of the pituitary gland, and the posterior pituitary problem. On October 29th Mr. Cecil P. G. Wakeley will discuss tumours of the intestinal tract, and on November 5th Mr. E. K. Martin will show specimens illustrating surgical diseases of liver and bile ducts. All the demonstrations commence at 5 p.m.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh, held on October 16th, with Dr. A. H. H. Sinclair, president, in the chair, the following successful candidates were admitted as Fellows:

F. Bartholomew, B. W. F. Bishop, E. Bourke, J. J. M. Brown, A. J. Cameron, H. F. Cameron, J. E. Ellison, J. Gerrie, R. N. Ghosh, E. J. D. Gillespie, H. R. Goldberg, S. W. Grimwade, G. C. Halliday, R. W. G. Kelly, A. B. Kerr, W. D. Macfarlane, C. W. McVicar, A. M. Marshall, G. G. Mowat, D. N. Wilson, E. C. Wynne-Edwards.

Obituary

PROFESSOR RAMÓN Y CAJAL

Santiago Ramón y Cajal died on October 18th at the age of 82. To most medical men in England his name has been familiar since their study of histology, but few have realized the greatness of his achievements. Of these perhaps the chief is the stimulus which he gave to scientific education in Spain, and the advances in educational methods which were based on his advice. How much of his thoughts were given to this subject may be gleaned from any of his more personal writings. The prefaces to his books show a complete devotion to science and a desire for recognition, not of himself, but of Spanish science. He was, in fact, the father of Spanish science, for no Spaniard before him had made any noteworthy contribution to scientific knowledge.

Cajal was entirely self-taught. His father, who was professor of anatomy at Zaragoza, first turned his attention to the structure of the human body, and his intense love of beauty and skill in drawing stimulated his interest in histology. He owed to Golgi's publications and to photographic methods the use of silver impregnation in histological work. But apart from Golgi he had no teachers. His first medical excursion to foreign lands was to demonstrate his preparations of the nervous system to the German Society of Anatomists. His life-work consisted in the application of his own methods to histology. How fruitful those methods can be in skilled hands has scarcely been recognized outside Spain, for few have taken the trouble to master all the variations in technique which are needed for different structures. In Cajal's hands and those of his pupils, however, they have resulted in a wealth of knowledge which only of very recent years, by the translation of his *Degeneration and Regeneration of the Nervous System* and his *Histology*, has found its way into the English language. His greatest work, *Textura del Sistemo Nervioso del Hombre y Vertebrados*, which began to appear in Spanish in 1897, was translated into French in 1909. Unfortunately it has been out of print for many years, and is now difficult to obtain. Neuro-anatomists know it as the most complete and accurate account of the microscopical anatomy of the nervous system which has ever been written. But its most remarkable feature is that it is chiefly based on Cajal's own studies with silver impregnation techniques.

Since 1901 Ramón y Cajal edited the *Travaux du Laboratoire de Récherches Biologiques*, which was devoted to his own work and that of his pupils and associates. The prestige of this journal has always been high, and its publication in French of recent years has greatly widened its appeal. When he was elected a foreign corresponding member of the British Medical Association in April, 1934, he generously presented to the Association's Library a set of the *Travaux* for the years 1912 to 1933.

As a scientist Cajal ranks very high. Of his many contributions to knowledge few have had to submit to change. Perhaps his very isolation contributed to this result, as it made him observe things freshly with his own eyes and left him free from erroneous tradition. In fact, he insists in several places that his work is individual and Spanish, and deplores the fact that others, without troubling to read the Spanish literature, have rediscovered facts which he and his pupils had observed.

Cajal received abundant recognition during his life, a recognition which meant little to him, except the honour which it brought to Spain and the opportunities which it afforded for further work. He was professor of anatomy at Valencia at the age of 29 and for thirty years, up till 1922, professor of histology and morbid anatomy

at Madrid University. His early book, *New Ideas on the Structure of the Nervous System*, which appeared in 1894, was sold out in Spanish, German, and French editions by 1899. He gave the Croonian Lectures before the Royal Society of London in 1894, and received half of the Nobel Prize in 1906. On this occasion physicians of the Argentine raised a fund for the publication of a book by Cajal, and to this we owe his *Degeneration and Regeneration of the Nervous System*. In Spain also he was honoured by being made a life senator, and a magnificent laboratory in Madrid, El Instituto Cajal, has been erected as a permanent memorial of the man and his work.

We regret to announce the death, on October 10th, of Dr. Thomas Horton in his seventy-ninth year. Dr. Horton was trained as a pharmaceutical chemist, but at the late age of 35 he went to Durham University College of Medicine at Newcastle for his medical training. Two years later he entered University College Hospital, London. He qualified M.R.C.S.Eng., L.R.C.P.Lond. in 1894, and graduated M.B. (with honours) and B.S. at Durham University in the same year. He took his M.D. in 1896. He was Tulloch and Armstrong scholar at Durham University, and gold medallist in medicine and Erichsen prizeman at University College Hospital. He practised at Torquay for over twenty years with considerable success, and was honorary surgeon to the Torbay Hospital and honorary physician to the Western Hospital for Consumption. After his retirement he devoted himself to voluntary work for the Baptist Missionary Society, being successively chairman of the Medical Committee and chairman of the General Committee of that society. He was a keen member of the British Medical Association for some twenty years. His younger son was killed in the Great War. He is survived by one daughter and one son, who is in surgical practice at Weymouth.

Medical News

The centenary appeal on behalf of Charing Cross Hospital Medical School will be inaugurated on Thursday, November 1st, when Marshal of the Royal Air Force Sir John Salmond will distribute the prizes and give an address.

The Semon Lecture, 1934, on "Inflammation of the Maxillary Antrum and other Accessory Sinuses (Some Clinical Manifestations of its Pathology)," will be given by Mr. Herbert Tilley at the Royal Society of Medicine on Thursday, November 1st, at 5 p.m.

A series of lectures will be given at the Central London Thoat, Nose, and Ear Hospital (Gray's Inn Road, W.C.), on Fridays, at 4 p.m., from November 2nd to March 29th (excluding December 28th).

Dr. George Barger, F.R.S., professor of chemistry in relation to medicine in the University of Edinburgh, will deliver a course of three lectures on "Chemical Questions Relating to Pharmacology," at the London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C., on November 1st, 2nd, and 9th, at 5.30 p.m. Admission free, without ticket.

Dr. A. Goodman Levy will read a paper on "Criticisms of Some Aspects of Psycho-analysis from a Layman's Point of View" before the London Jewish Hospital Medical Society, at the hospital, Stepney Green, E., on Thursday, November 8th, at 3.45 p.m., with the president, Professor Charles Singer, in the chair.

A course of post-graduate demonstrations will be given at the Manchester Hospital for Consumption and Diseases of the Ear, Nose, Throat, and Chest, Hardman Street, Deansgate, Manchester, on Wednesdays, at 4.30 p.m., from October 31st to December 12th inclusive. All graduates and students of medicine are invited to attend.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that further lecture-demonstrations will be given by Dr. Clark-Kennedy at 11, Chandos Street, W., at 2.30 p.m. on October 30th and November 6th. In the series of lectures on diet and dietetics, on Wednesdays at 8.30 p.m., at 11, Chandos Street, W., Dr. Leonard Findlay will speak on diet of infants on October 31st, and Dr. E. G. B. Calvert on diet of the diabetic on November 7th. Special demonstration of surgical cases by Mr. C. E. Shattock on November 10th, at 3 p.m., at the National Temperance Hospital, Hampstead Road, N.W. Special courses of instruction include neurology at the West End Hospital for Nervous Diseases, October 29th to November 3rd, all day; obstetrics at the City of London Maternity Hospital, all day, November 3rd and 4th; medicine, surgery, and gynaecology at the Royal Waterloo Hospital, November 5th to 24th, all day; chest diseases at the City of London Hospital, Victoria Park, November 5th to 10th, all day; urology at St. Peter's Hospital, November 5th to 17th, all day; venereal disease at the London Lock Hospital, November 12th to December 8th, afternoons; gynaecology at the Samaritan Hospital, November 17th and 18th, all day; proctology at St. Mark's Hospital, November 19th to 24th, all day; rheumatism at the British Red Cross Clinic for Rheumatism, Tuesday and Thursday evenings, at 8.30 p.m., November 20th to December 6th. A panel of teachers is available for individual tuition. Courses are open only to members and associates of the Fellowship.

Dame Louise McIlroy, who has been appointed assistant director and lecturer to the Clapham Maternity Hospital, Jeffreys Road, London, S.W., is now holding an ante-natal clinic there every Wednesday, at 10 a.m., and giving a weekly lecture.

The Lilly Research Laboratories at Indianapolis, U.S.A., were formally opened on October 11th. At the dedication ceremony addresses on "Research in Manufacturing Pharmacy" were given by Mr. J. K. Lilly, on "The Unpredictable Results of Research" by Dr. Irving Langmuir, on "The Early Story of Insulin" by Sir Frederick Banting, on "Chemical Ideas in Medicine and Biology" by Sir Henry Dale, and on "The Work of the Laboratories" by Mr. Eli Lilly.

It is announced that a committee, including Sir Charlton Briscoe and Mr. Cecil Wakeley, has been formed for the purpose of raising a fund to commemorate the late Miss M. E. Ray, R.R.C., of King's College Hospital. Miss Ray's association with "King's" began in 1889, when, on completion of her training, she was appointed sister of the Albert Ward. In 1896 she became assistant matron of the Leeds General Infirmary, and in 1899 matron of the County Lincoln Hospital. After being there for seven years she was appointed sister-matron of King's College Hospital, a post she held until 1918. For services during the war she was awarded the Royal Red Cross. In 1918 she retired from "King's," and took over the post of honorary secretary of Lady Minto's Indian Nursing Association. It has been suggested that the most fitting memorial to her would be the establishment of a fund to be devoted towards assisting "King's" nurses who are temporarily embarrassed, especially those requiring rest and convalescence after illness. Cheques should be sent to Miss M. A. Willcox, Sister-Matron, King's College Hospital, S.E.5.

The National Council of Women of Great Britain, at its annual meeting held in Edinburgh this month, unanimously adopted a resolution urging His Majesty's Government to require from local authorities strict compliance with their statutory duty to ascertain the number of mental defectives in their area, and to provide for them institutional accommodation and other appropriate means for their adequate care and protection.

On October 1st the British Legion took over, as a seaside annexe to the institution at Preston Hall, Douglas House, Bournemouth, which has hitherto been administered by the United Services Fund as a convalescent centre for tuberculous ex-service men. The institution is approved by the Ministry of Health, and will add seventy-five more beds to the number already available at Preston Hall.

Professor Pavlov, the world-famous physiologist and director of the biological station of Koltouchi, near Leningrad, has recently celebrated his 85th birthday.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Treatment of Chronic Nasal Discharge

"M.S." writes: Could anyone suggest a hopeful line of treatment for this case of chronic rhinitis? The patient, a woman aged 25, has had the maxillary antra and frontal sinuses operated on, and, later, she tried a course of homoeopathic treatment. She states that the headaches are less severe and less frequent than they used to be, but there is still very copious nasal discharge. Should allergic reaction be tested, or would an autogenous vaccine or some form of light therapy be more helpful?

Age for Dick and Schick Tests

"O. M. H." writes: At what age should children be Dick- and Schick-tested and, if positive, actively immunized?

Localized Flushing

Dr. R. K. Robertson (Sheffield) writes in reply to "H. H. B." (*British Medical Journal*, October 13th, p. 705): I once had a case of patchy areas of flushing in an otherwise healthy young woman, which responded quite well to the following mixture, taken thrice daily:

Quininae sulph. gr. j, acid hydrobrom. dil. ℥ v, syr. aurantii q.s., aqu. q.s.

Treatment of Trichophyton Infection

A major of the R.A.M.C. writes in reply to "M.D.," who suffers from trichophyton infection: I have a brother who is a chemist. He was out East in a district where medical aid was not forthcoming, and he got dhobi itch. Using his knowledge that the skin is a colloidal membrane, and that glacial acetic acid is known to penetrate a colloidal membrane, he applied to himself pure glacial acetic acid, with an immediate cure. When told of this, I asked if it was painful, and how it was applied. It appears it was not very painful. The acid was dabbed on with a small piece of cotton-wool held in forceps, and there did not appear to be any burning of the skin. I applied this treatment to myself when a bald patch appeared in my hair. Several of the usual ointments failed to stop it spreading. An immediate cure resulted. This might therefore be worth trying in the case of a trichophyton infection. I should advise a very cautious application to a small area, and watch the result before applying it liberally, as from the nature of the drug it is rather drastic.

Dr. Wright Lambert (Brentwood) writes: If "M.D." and others infected with trichophyton will try painting the affected parts daily with 1 per cent. brilliant green in rectified spirit I think they will get more relief, if not actual cure, than by any other treatment.

Income Tax

Use of Private Residence

"E. J. N." owns the house in which he lives, and uses two rooms for consultation, etc. One maid is kept at the house, and "E. J. N." rents another house, where the main surgery is situated. What can he claim for the former premises?

⁂ Seeing that most of the callers are apparently dealt with at the rented premises "E. J. N." will probably not be entitled to claim more than 1/3, or even 1/4, of the general expenses (rental value, light, maid's wages, etc.) of his residence.

LETTERS, NOTES, ETC.

Ernest Hart, 1836-1898

Sir D'Arcy Power writes: E. V. Lucas, C.H., says in the October, 1934, number of the *Cornhill* (p. 410): "Ernest Hart was the founder of the *Lancet* and a great connoisseur of Japanese art." Surely the first statement should not go uncorrected.

⁂ Mr. Lucas would not have fallen into this blunder if he had read Sir D'Arcy Power's memoir of Ernest Hart in the *Dictionary of National Biography*, or Sir Squire Sprigge's *Life and Times of Thomas Wakley*. Hart was born in 1836, thirteen years after Wakley founded the *Lancet*.

Thrush and Pyloric Stenosis

Dr. Robert Craik (West Ealing) writes: A boy, born in a maternity home, was well till the twelfth day, when he vomited. This subsided, and mother and child were discharged on the fourteenth day. At birth the baby (a first one) weighed 8 lb. 3 oz., and on discharge 8 lb. 2½ oz. I first saw him on the eighteenth day on account of vomiting. On the twentieth day he was no better, was constipated, and a swab from the mouth soon gave growth of *M. albicans*. Was it possible that his troubles were due to monilial gastritis? On coming home he was fondled by a large family, from one of whom he undoubtedly acquired the infection. His condition fluctuated, but there was no improvement in a week, and there was steady loss of weight. Suspecting pyloric stenosis, he was sent to hospital on his twenty-ninth day, weighing 5 lb. 15½ oz. on admission. He was operated on next day, made a good recovery, and was discharged at the age of 3 months, weighing 8 lb. 9 oz. At 7 months he weighed 16 lb. and had cut two teeth. Doubtless congenital abnormality is the important point, but the lumen is contracted to a varying degree. In this case I think the onset of serious symptoms was determined by the thrush infection, and possibly this is the explanation of the onset in not a few cases.

Myoidema

Drs. J. Ronald and N. C. F. Milne write from the Royal Infirmary, Stirling: We have just read Dr. Broadbent's interesting memorandum in the *Journal* of October 13th (p. 679), in which he draws attention to the physical sign of myoidema. As members of what he describes as the "younger generation of doctors" may we point out that myoidema (more generally known as "myotatic irritability") is familiar to most Edinburgh students—undergraduates and graduates alike. We venture to suggest that Edinburgh does not stand alone among the teaching schools in imparting knowledge of the significance and diagnostic importance of this phenomenon.

The G.P.'s Nightmare

Dr. Charles J. Hill Aitken (Kilnhurst, nr. Rotherham) writes with reference to the paragraph with this heading (October 20th, p. 754): I understand that, many years ago, the late Professor John Chiene had a cartoon of himself—a general surgeon—hanging on to the umbilicus, the only part left to the general surgeon by the specialist surgeons.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 228.